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Whole Earth

Access to Tools, Ideas, and Practices ▶ WINTER 1997

Special Issue

The Earth
in Crisis
Religion's
New Test of Faith

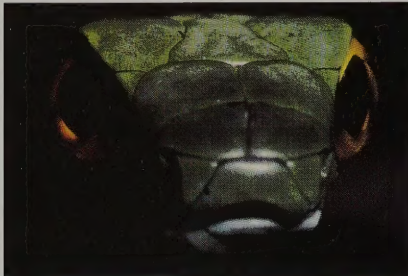


\$6.95
\$8.50 CDN

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Winter 1997

Whole Earth



Cover: Yellow Blunt-headed Vinesnake (*Imantodes inornatus*), Costa Rica, in defensive posture. Photograph by Michael and Patricia Fogden, from *Snakes (The Evolution of*

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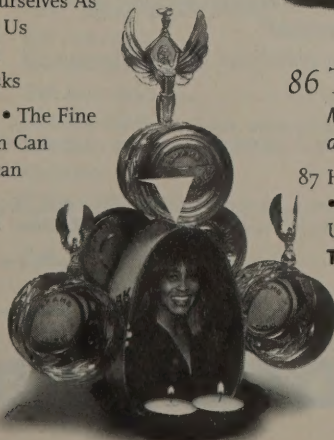
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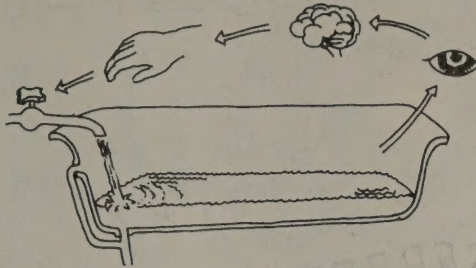


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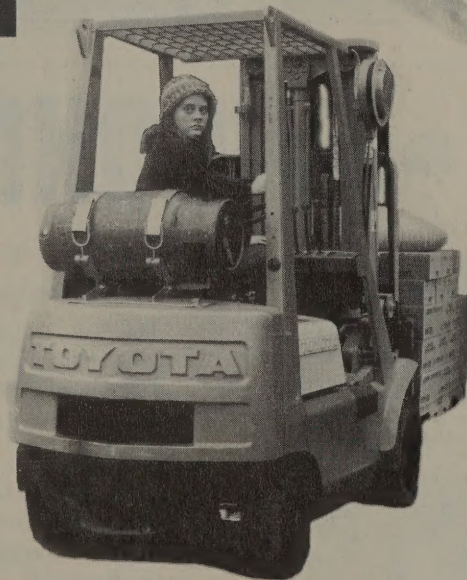
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Whole Earth

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Whole Earth is published (0749-5056) quarterly by Point, a nonprofit educational organization located at 1408 Mission Avenue, San Rafael, CA 94901 (415/256-2800). Subscriptions: \$24 USA, \$42/2 years; \$32 Canada, includes GST; out of North America add \$15 postage.

Subscription questions and change of address: Whole Earth, PO Box 3000, Denville, NJ 07834; call 800/783-4903 (9:00 am to 8:00 pm EST); fax: 201/627-5872; email: wer@well.com.

Back issues: send \$12.00 per copy to Whole Earth, 1408 Mission Avenue, San Rafael, CA 94901. Copyright © 1997 by POINT. All rights reserved.

Periodical postage pending at Harrisonburg, VA and additional mailing offices. Postmaster send address changes to Whole Earth, PO Box 3000, Denville, NJ 07834.

PRINTED IN USA.

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2:3, Summer 1997
Special Issue on Music & Nature
CD included
\$12 plus postage and handling.
617-253-2889 tel
617-577-1545 fax
journals-orders@mit.edu

1997 Subscription Rates

\$34 Individual;
\$24 Student/Retired;
\$98 Institution.
Outside U.S.A.
add \$16 postage and handling.
Canadians add 7% GST.
Prepayment is required.

MIT Press Journals

Five Cambridge Center
Cambridge, MA 02142 USA
Published quarterly by The MIT Press.
ISSN 1081-0749.

<http://mitpress.mit.edu>

TERRA
nature NOVA
& culture

What

is the relationship between music and nature? Did birds teach us to sing? Did we first hear harmonies in the rush of the wind in the trees, rhythms in the flow of water over rocks? Music tugs at the emotions, sings the world into being. It lures us into other cultures, other species, other ways of life. Accompanied by a 15 track, 74 minute CD, *Terra Nova 2:3* is a special issue that celebrates the way music can be made out of nature and make us hear nature anew.

We present many kinds of music from many parts of the world, each of which changes the way you hear what lies around you. Combining this with in-depth writings is something never quite attempted before: We blend texts on the relationship between sound and the environment with unforgettable recordings that show just how much we have to learn from the rich tapestry of sounds around us.

Words

David James Duncan stumbles upon a concert in the wilderness, while *Eric Salzman* looks for the song of the hermit thrush. *Max Rouquette* tells of a magical oboe that could make even the devil dance. *David Dunn* describes a life in sound art. *Sam Shepard* writes about baby wild animals. *Murray Schafer* constructs an enchanted forest, and *Robert Schneider* writes of a child who senses the pulse of the universe. *Thomas Wharton* throws a piano over a cliff.

Music

David Lumsdaine presents the legendary Pied Butcherbirds of Spirey Creek. *Steve Feld* offers the lift-up-over-sounding of the Kaluli of New Guinea. *Chris Hughes* plays a blackbird song over and over, slower and slower, until it can finally be heard for what it is. *Jaron Lanier* plucks cactus needles in the Arizona desert. *Michael Pestel* jams with ground pigeons in the National Aviary. *Brian Eno* makes a map of a place no one knows, *Doug Quin* and *David Rothenberg* gnash their teeth with the walrus. Hildegard of Bingen's sacred breezes are transformed by *Andra McCartney*. *David Toop* records a future jungle. *John Luther Adams* circles the winds. *Ludwig van Beethoven* cannot be overlooked, especially as played by *Russell Sherman*. *Sarah Peebles* has nocturnal premonitions of a world where nature and technology meet in unclassifiable sounds. *Louis Sarno* and *Bernie Krause* reveal the sonic ecology of the BaBenzélé pygmies. *Toru Takemitsu* gives silence the freedom to breathe.

The modern experiment to live without religion has failed, and once we have understood this, we know what our “post-modern” tasks really are.

—E.F. SCHUMACHER, A GUIDE FOR THE PERPLEXED

The Spiritual Labor

Since Earth Day, prophets have propagated like lap tops. Believers and non-believers hear doom-gloom Jeremiahs, techno-Pollyannas, and Coyote forecasters of a time, not too far off, when all things will be reconnected. Earthlove could be the wildcard. It might have more influence over the next decades than telecommunications, the United Nations, Elvis Presley, or transnationals. So Whole Earth decided to peek at the new Earth ministries, faith-based conservation efforts, and green congregations. We found complex stories of creation-loving rabbis, Apaches, and Hindus whose religious commitment led them, like the early civil rights movement, to challenge secular law. Old-new taboos and religious laws (be it from Leviticus, the Qur’an or sutras) have come to light. Some of these faith-influenced ethics are so personal that secular laws seem secondary: Banish toxins from my family’s blood as well as from planetary nutrient cycles! Prohibit violence against habitats of rare species as well as humans within the household! Rekindle a joy in spirit, frugality! Enjoin material and emotional greed! Re-think how much flesh to eat and how best to husband animals. “Sanctuary” has begun to recapture its old glow.

At this specific moment in history, false prophecies are as common as weather reports. Many wary congregants deny that the Earth is in crisis. Still others fear that opening their religion’s door to environmentalism will let in a Trojan Horse full of pagans, zealots, or mendicants. Whole Earth has made no attempt to resolve some of the deep divisions within and between various religious communities. The news is: the spiritual

dialog has become rich and important. Religion (Latin: *re-ligare*) means re-linking and that revival is what Whole Earth is all about.

Here are a few insights we picked up. Many of our readers shun the world of organized religion—too authoritarian, dogmatic, hierarchical, anthropocentric, and chauvinist. They see themselves as more egalitarian, if not libertarian, with an affection for diversity, a soft spot for symbiosis and local landscapes. Martin Marty calls them the “countercovenanters” (page 6). On the other hand, many activist ministries, deeply committed to social and environmental justice, have shunned the enviros. In their hearts, they can’t trust anyone who separates healing the Earth from healing human communities. Paul Gorman (page 13), our Judeo-Christian guru, wonders: Can’t there be humans as charming, proud, and worth preserving as the animals on Sierra Club calendars?

LIVE FRUGALLY.

Build bridges between the haves and the have nots.

Do art, music, dance, writing for the love of the Earth.

Change animal research and husbandry.

TAME TECHNOLOGY.

Adopt Earthlove prayers and rituals in your daily life.

Don't get bogged down in the gender issue, each religion has its own gender beliefs; concentrate on caring for creation.

Review religious institutions' investments. Ensure they're eco-kosher.

Study. Become an environmental or public health professional.



BIG TREES, FELTON, SANTA CRUZ, CA, 1880. ATTRIBUTED TO CARELTON E. WATKINS.

Dismantle the link between patriarchy and environmental destruction.

Connect healing the planet to the healing demanded by God's word: peace between races, ethnic groups, classes and nations.

Learn the local flora and fauna, water cycle, soils of your watershed.

Practice nonviolent action.

WORSHIP GOD'S CREATION OR GAIA OR THE NATURAL WORLD.

More time and fun outdoors. Walk!

of Whole Earth Healing

I have my own *mea culpa*. For years, I gave talks on ecology and economics, explaining how both originate from the Greek word *oikos*, meaning household or dwelling place. The “logos” of eco-logy comes from the Greek perception of governance—similar laws operate in both human nature and nature itself. The “nomos” of economics originally derived from pastoralists numbering (accounting for) their livestock to insure household wealth. I had overlooked “ecumenical” which also comes from *oikos*. Ecumenical is simply “the inhabited world,” perhaps the most cogent of the *oikos* trio. Ecumenical = the Big House or Same House, home for all clans, creatures, and religions. From it evolve good manners toward all planetary beings. Hi, Redwood! What a sunny day. Hi blunt-headed vinesnake (our cover mug shot), can humans extend their love of nature to include serpents, venomous and awesome predators?

In preparing this issue, we have learned that some chose a spiritual path that tests itself by immersion in moral tension. The path includes squabbles over sacred lands, waste dumps, toxins, water, food, legacy landscapes, and the implementation of public policy. On this path, the pilgrim deepens his/her moral resolve, refines faith, and comes to an Earthlove that persists, even with humor, through flip-flop politics and deep dark holes. This is a path that infolds conflict and community.

A second path emphasizes individual right livelihood, voluntary simplicity, and self-realization. This second path of spiritual labor focuses on non-conflictual projects like recycling, neighborhood gardens, changing liturgy, cultivating sanctuaries or beautiful spaces, and healing outer/inner-life imbalances. It hopes the world will change by setting an example, and by the accumulated impact of many such small acts by many persons. Both paths rest on common soil: seeing our life as pilgrimage and the clear articulation of faith-based action is our best hope.

So Whole Earth now croons a more consciously, eclectically eco-eco-ecu-centric song. The legacy grows with early inspiration from the beauty and powers of the Earth, native cultures, Eastern religions, mystics. *Walden*, the *Farmer's*, *Poor Richard's*, and *Sand County Almanacs*. Gandhi's writings, Thomas Berry, Arne Naess, Dolores LaChapelle and Joanna Macy have jump-started a dialog with Creation-caring clergymen and women, sangha teachers, rabbis, imams, gurus, yogins, wiccans, monastics, and seminarians. Many contemporary people of faith feel this unique moment in human history—a divine test of our age's sense of wonder, commitment, and trust.

Peter Marshall

We sincerely thank the Sacharuna Foundation, the Marin Community Foundation, the Preservation Fund, the Philanthropic Cooperative, and an anonymous donor for their generous grants. Many additional gifts contributed to the publication of this issue. Many Buddhist groups (page 38) helped fund HH Dalai Lama/Brower interview. In cooperation with the Marin Community Foundation, we will distribute 2,000 free copies to schools, colleges, and faith-based conservation groups.

- Run for political office; lobby like hell.
- LIMIT FAMILIES TO ONE OR TWO KIDS.
- Support women in all of these tasks.
- RETURN TO THE SCRIPTURES. WRITE GREEN SERMONS AND PRAYERS.
- Advocate Free Choice.
- Buy or donate land. Get it out of the real estate market.

What's most important in caring for the Earth and practicing moral justice?

- Tolerate other religions on issues like family size, gender equity, sacred lands and ritual.
- REDUCE CONSUMERISM IN THE NORTH.
- Grow gardens, restore watersheds.
- SAVE RARE ECOSYSTEMS AND SPECIES.
- Create religious sanctuaries to preserve habitat eternally.



American Nature Religion

The Company of Countercovenanters

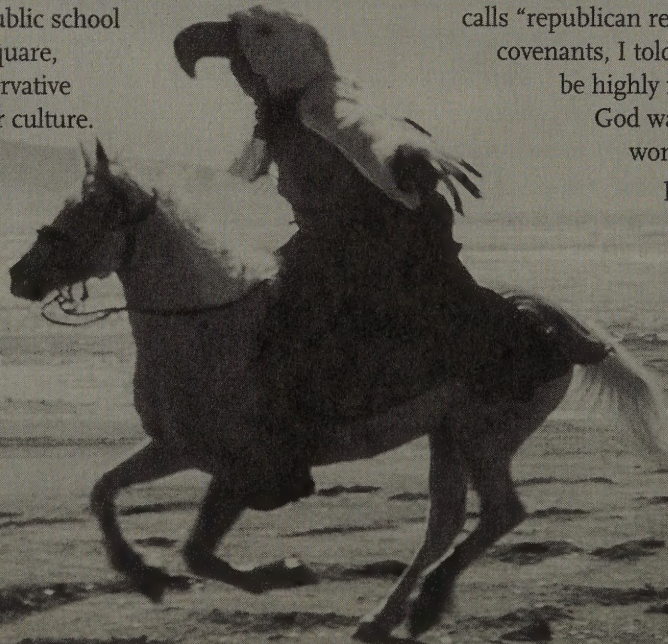
“The countercovenanters include, along with Transcendentalists, many Native Americans, women, poets, healers, folksingers, humorists, naturalists, publicists, persuaders, and not a few pragmatic politicians.”

Some Japanese scholars whose company included some Christian theologians, rarities in that land, asked for a lecture on the concept of “covenant” in America. I lectured on “America’s Two Covenants and Its Countercovenant.” Covenant One is biblical—mediated through Jewish and Christian sources and resources. Christopher Columbus lived by it, and so did Puritans and revivalists, synagogue goers, churchgoers, Bible believers and Bible readers. Covenant Two is enlightened—mediated through the Founders and Framers and their documents, and through our free institutions. George Washington lived by it, and so did early republicans and democrats, frequenters of public school and the public square, liberal and conservative custodians of our culture.

Both of these covenants—or compacts or bondings—were religious in that they were sealed by a sense that evoked a transcendent order of Being. In both cases, citizens who lived by the covenants even invoked a transcendent Being. Whether the God of Abraham and Jesus or the God of Nature and Reason, this God at least metaphorically gave promises and exacted responses. Citizens often grasped these covenants through institutions—churches, courthouses, and the like—but they also often avoided the necessity of transacting through formal institutions. They produced do-it-yourself or à la carte versions of both.

These two covenants inform much of what the public calls “organized religion,” some scholars call “civil religion” and Professor Catherine Albanese calls “republican religion.” These two covenants, I told the Japanese, tend to be highly male and masculine; their God was usually “He.” Few women got their names in print as keepers of the covenants or as leaders

Right: Tom Dinofrio, Universalist Life Church minister, at Sun Festival in northern California town (1979).



Martin E. Marty is Fairfax M. Cone Distinguished Service Professor in the History of Modern Christianity at the University of Chicago. These comments are adapted from his foreword to Catherine Albanese’s *Nature Religion in America* (see p. 8).

American Attitudes on Creation and Earthcare

“ We find a substantial majority agreeing with a statement justifying environmental protection by explicitly invoking God as the creator, with striking uniformity across subgroups:

#58. Because God created the natural world, it is wrong to abuse it . . .

Earth First!	76%
Sierra Club	79%
Public	78%
Dry Cleaners	69%
Sawmill workers	78%

This widespread agreement . . . is not because our sample uncritically adopts any biblical concept. A majority of the same sample rejected the apocalyptic view described in Revelation:

#61. Maybe global climate change is a fulfillment of the biblical prophecy that the world will end in fire.

Earth First!	33%
Sierra Club	07%
Public	20%
Dry Cleaners	33%
Sawmill workers	26%

Agreement . . . about creation was correlated with religious belief, whereas agreement about the apocalypse was not.

Respondents were asked whether they felt there was a spiritual force in the universe and whether they belonged to an organized religion. By either measure, those who were religious were significantly more likely to agree with our statement #58 and to agree more strongly. That much is not surprising.

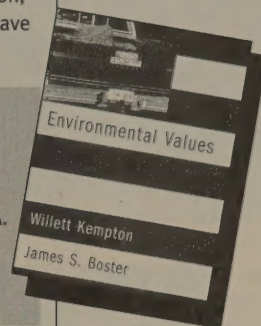
The converse is of greater interest: of those who did not belong to any organized religion, 69% agreed with #58 about creation. Of those who stated that they did not even believe there was a

spiritual force in the universe, 46% agreed with it.

What is going on here? Why should so many nonbelievers argue on the basis of God's creation? It seems that divine creation is the closest concept American culture provides to express the sacredness of nature. Regardless of whether one actually believes in biblical Creation, it is the best vehicle we have to express this value.

Environmental Values in American Culture

Willet Kempton, James S. Boster, and Jennifer A. Hartley, 1996; 320 pp. \$15, MIT Press.



of the institutions, even if they made up more than half of the constituencies. The covenants produced many effects most of us would cheer, values and virtues off which we live. They were also marked by very productive, almost obsessive notions of contract, production, and achievement. On occasion, their side effects for participants have included compulsiveness, ulcers, heart attacks, endocrine disturbances, alcoholism, and other diseases that come when people oversubscribe to such notions.

So America needed and had a countercovenant. This countercovenant also had its transcendental tinge, and some of its keepers even called themselves Transcendentalists. They might be—but often were not—theists or deists, and they spoke more easily of human spirit than of Holy Spirit.

They urged that we keep contracts only with Nature, produce only what harmonizes with it, achieve without grim competition, and live within a natural and human universe.

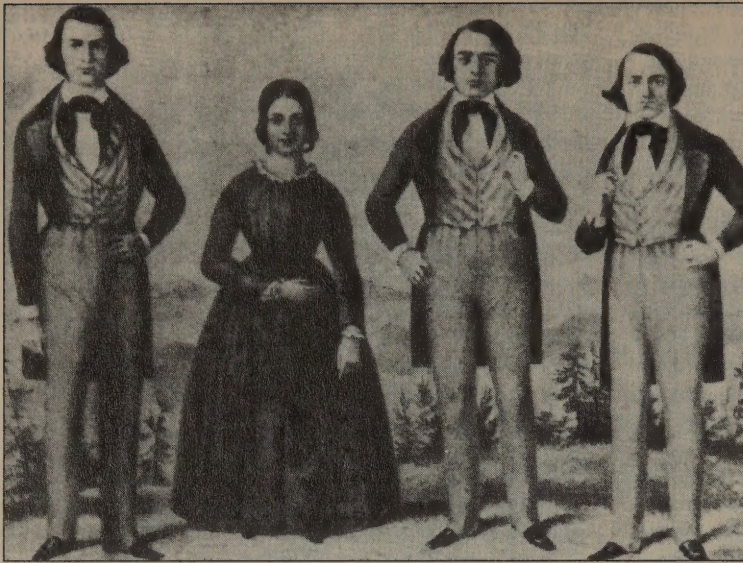
Of course, to make their views known, they had to assert them with power, embody the values associated with them, and seek to persuade others. In sum they were themselves eager to acquire power to effect their ways, even if the means for doing so seemed subtle. The countercovenanters include, along with Transcendentalists, many Native Americans, women, poets, healers, folk-singers, humorists, naturalists, publicists, persuaders, and not a few pragmatic politicians who have found advantage in appealing to the devotees of nature religion. Since this countercovenant has no Curia, Sanhedrin, or Supreme Court, no apostolic succession or General Assembly, no committees of canon law or liturgical revision, it is necessarily constructed loosely, both in reality, whatever

that is, and in the reality imposed by a historian who writes about its development. The student of the countercovenant must move between zones that others have marked with boundaries between nonreligious and religious, between scientific and supernatural, between secular and sacred, between—we have to be frank about this, too—people seen in mainstream culture as “nutty” and “nonnutty,” and between religions that look eccentric to some and centric to others, and vice versa. Mesmerism, water cures, early chiropractic, and old nostrums coexist here with Emersonianism, holistic healing, and new (and therefore momentarily respectable) nostrums.

When America-in-Power is too sure of its mission, the company of the countercovenant sings songs to raise questions. When it is too confident of the present forms of asserting power, they write poems to praise vulnerability. When it is too productive, they ask good-natured questions about the point of productivity. (Listen, for instance, to Henry David Thoreau's questions.) When the covenant is too harsh, they soften it without being weak.

On that note, I ended my Japanese lecture. Whereupon a Christian theologian who had survived the bomb in the environs of Nagasaki asked: “Why could this countercovenant not be more prominent in your country's thinking and acting? Better, can you think what a great nation you would have if what you call the countercovenant became part of the covenants themselves and did not merely counter them? If America could be vulnerable while carrying on its mission, thoughtful while being productive, soft when it is asserting itself, wouldn't it become a wonderful nation?” Wouldn't it, indeed. ⊕

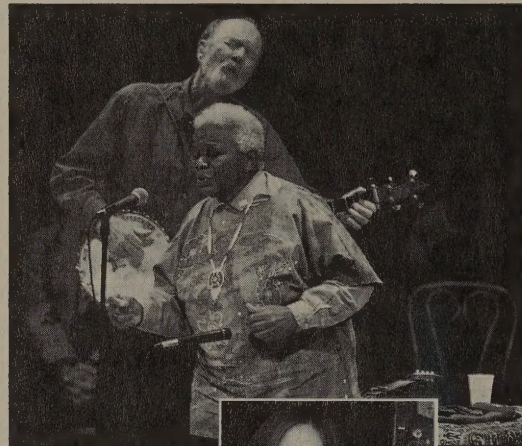
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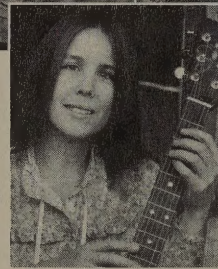
Two centuries of counter-covenanters, American musicians performing and working on behalf of Nature. Clockwise: The Hutchison Family Quartet, Pearl Jam, Paul Winter, Kate Wolf, Pete Seeger and Ella Jenkins, Huey Lewis. Others include James Taylor and the Grateful Dead.



ANNA HOPPER



JEFF TINSLEY, COURTESY OF THE CENTER FOR FOLKLORE PROGRAMS & CULTURAL STUDIES, SMITHSONIAN INSTITUTION.



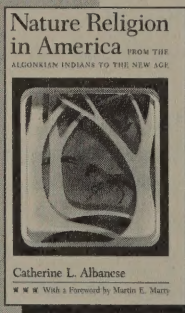
RON BLANCHETTE



Nature Religion in America From the Algonkian Indians to the New Age

Catherine L. Albanese. 1990; 267 pp. \$13.95, University of Chicago Press.

Albanese has found a strain of nature religion that softens the aggressive and pragmatic covenants. She deserves a patent for disclosure of this protean, enduring, viscous form of spirituality and religion. Rarely do the camps of covenanters and counter-covenanters receive such tantalizing invitations to enter each other's company, to engage each other, and to learn together. — Martin E. Marty



“Emerson had begun by gazing in ecstasy at the stars, contemplating the works of God before him and yielding to their harmonizing influence, but by the time he had welded the two pieces of his essay together he was setting the heavenly lights in their places. Harmony between the microcosm (man) and macrocosm (nature) had become the mastery in which humans claimed their true dominion and revealed themselves as the gods they were. Here, already, was a blueprint for a preservationist movement to hold onto the wilderness and, at the same time, for a mind-cure movement to leave lower for “higher” nature. Emerson’s confusion did not cause

America’s confusion, but it became America’s confusion and, to some degree as well, the confusion of that second-generation Transcendentalist, Henry David Thoreau.

“When Thoreau, encamped at Moosehead Lake, awakened unexpectedly at night, he saw “a white and slumbering light.” It came from phosphorescent wood; but “I was in just the frame of mind to see something wonderful.”

He “exulted like ‘a pagan suckled in a creed’ that had never been worn at all, but was bran new, and adequate to the occasion.” He “let science slide, and rejoiced in that light as if it had been a fellow-creature,” believing that “the woods were not tenantless, but chokefull of honest spirits” as good as he.

Alliance of Religions and Conservation

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News from ARC

Free; donations of \$15 or more welcomed and encouraged. Manchester Metropolitan University, 799 Wilmslow Road, Manchester M20 2RR, UK; +44(0)161/434-0828, fax +44(0)161/434-8374, icorec@icorec.nwnet.co.uk.

International Consultancy on Religion, Education, and Culture (ICOREC)

See ARC access. The most comprehensive interfaith alliance working on the planet, launched by HRH Prince Philip at the Summit of Religions and Conservation in 1995, ARC is designed to help religious communities and environmental organizations work together on faith-based conservation projects that respect and build upon the teachings of the faiths involved. ARC has projects

in India, China, Europe, Africa, Thailand, Canada, and the Middle East. As is obvious from its origins and sponsors, this is not activism in the sense of Greenpeace or liberation theology. ARC works on small projects based in rehabilitation, restoration, faith, peacefulness, protection, and education. It's the quintessence of the new civilian citizen networks—based on global/local alliances—that inject start-up capital from NGOs into good works on Earth. Their biannual magazine, *News from ARC*, is unique in stories and hope.

ARC works closely with World Wildlife Fund UK and the International Consultancy

on Religion, Education, and Culture (ICOREC). ICOREC's publications are too many to list but include *World Religions and Ecology* (Cassel, 1992) on Christianity, Buddhism, Hinduism,

Islam, and Judaism. They have books for Orthodoxy, Baha'i, Jains, and Sikhs; new liturgies for harvest, the creation story, the incarnation, and sacred landscapes. —PW (Suggested by Charlene Spretnak).

“AIMS:

1. To assist and encourage the evolution of practical, educational projects which further the involvement of religions in caring for the natural environment.
2. To assist and encourage the development of religious and ethical programmes within conservation bodies.
3. To assist and encourage events which bring together religion and conservation groups to further ties and develop practical conservation projects.
4. To raise and grant funds for the above aims.
5. To publish and promote materials which explore the links between religions and conservation and further the aims of ARC.



COURTESY ARC.
Celebration of conservation and religion at Assisi.

This Sacred Earth Religion, Nature, Environment

Roger S. Gottlieb, Editor. 1996; 670 pp.
\$24.95. Routledge.

Who would have thought that more than twenty-five years after the first Earth Day catapulted ecological concern into so many areas of American life the case would still need to be made that our religious traditions have an inherent moral obligation to participate in protecting “the creation,” the natural world? Roger Gottlieb's contribution to what is perhaps history's longest wake-up call is a hefty tome that seeks to illuminate “religion in an age of environmental crisis.”

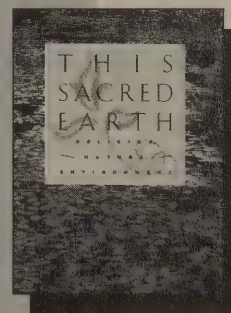
Drawing not only on the Abrahamic religions (Judaism, Christianity, and Islam) but also Buddhism, Taoism, native peoples' spiritual teachings, neo-Paganism, and spiritual ecofeminism, Gottlieb gathers testimony of

ecological teachings in traditional religious texts, contemporary ecotheology, green liturgy, and ecosocial activism. The result: an impressive chorus of thoughtful voices urging that our efforts to attain spiritual wisdom be grounded in ecological wisdom.

When I reached the section on “Ecology, Religion, and Society,” I found myself growing impatient. It is time to focus attention not only on declarations of general principles, but also on political efforts to change governmental policy. I appreciated Dieter Hessel's article on genetic engineering, and the World Council of Churches report which ends with issue-by-issue analysis and alternatives. Wake up, righteous sisters and brothers!
—Charlene Spretnak

the religious world-view and part of what must be scrutinized and altered if we are to pull through. Further, we have historical examples, from the U.S. civil rights movement to the nonviolent campaigns of Indian independence from the British, of creative and successful mergings of religion and social action.

In fact, the significance of religion is heightened because several of the guiding lights of modernity have become increasingly suspect. Faith in science and materialist/liberal democracies has been undermined by the political violence, technological disasters and cultural bankruptcy of the late 20th century. Purely secular radical politics have been rendered doubtful by the economic failures and totalitarian political excesses of communism. Hence spiritual perspectives can be a source of social direction as well as personal inspiration.



“Why do we need religion at all? Why can't governments, corporations, and individuals just stop polluting and eliminating species—and let religion be an essentially private matter of personal faith?”

The first answer is that for many people religious beliefs provide primary values concerning our place in the universe, our obligations to other people and other life forms, and what makes up a truly “good” life. All these are part of



More Groups

The Canadian Coalition for Ecology, Ethics, and Religion

Lot 75, No. 1021 Jackson Street, Dauphin, Manitoba R7N 2N5, Canada.

They combine all the major religions with First Nation (indigenous) traditions. CCEER publishes the only magazine, *Sacred Spaces*, for interfaith environmental awareness in Canada. They green-audit synagogues, churches, and temples, and conference and educate (advocate + educate) in public hearings (e.g., on nuclear waste in Canada).

Boulder Institute for Nature and the Human Spirit

1314 8th Street, Boulder, CO 80302; 303/939-8398, fax 303/447-2253.

Organizes Buddhist-inspired, but interfaith, education/solidarity walks in Burma and Thailand (see box), and sponsors the Alternative to Consumerism Network, to confront North consumerism and discuss how to bring up the economic level of poorer nations without the temptation of over-consumption.

More Reading

Ecology and Religion

(*Ecological Spirituality in Cross-Cultural Perspective*) David Kinsley. \$27.20. Being reprinted by Prentice Hall.

Best table of contents we've read.

Worldviews and Ecology

(*Religion, Philosophy, and the Environment*) Mary Evelyn Tucker and John A. Grim, Editors. 1994; 246 pp. \$18. Orbis Books.

Scholarly collection of religious earth philosophies. The authors are coordinating a series of conferences on religions of the world and ecology through the Center for the Study of World Religions at Harvard.

Worldviews

(*Environment, Culture, Religion*) Clare Palmer, Editor. \$50/year (3 issues) for individuals, \$90/year for institutions, fax 01859-520204, aj@erica.demon.co.uk, www.erica.demon.co.uk.

The best new academic journal.

SourceBook for Earth's Community of Religions

Joel Beversluis, Project Editor. 1995; 366 pp. \$18.95 (\$21.95 postpaid). CoNexus Press. PO Box 6902, Grand Rapids, MI 49516.

Fine, carefully-considered chapters on environment, science, justice, and peace.

In 1981, the Cathedral celebrated St. Francis's 800th birthday with a performance of Paul Winter's *Missa Gaia*. David Brower preached. By 1985,

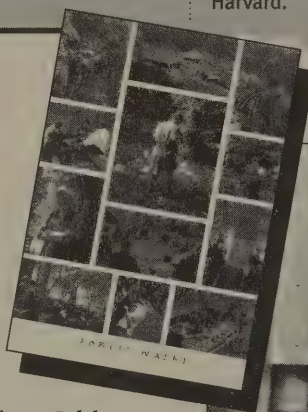
St. Francis Day included a blessing of the animals, who were welcomed into the Cathedral. Now it yearly attracts over 6,000 humans and non-humans.

INTERFAITH SOLIDARITY WALKS

"To have our story told" was the top desire of the indigenous leaders of Thailand. The Karen, Mon, Lahu, Lisu, Akha, and other groups are under pressure from logging, roads, mining, dams, racism, alcohol, drugs, and the lure of advertising and consumerism.

Under the umbrella of the Spirit in Education Movement and its leader, Achaan Sulak Sivaraksa, an interfaith group of Buddhist, Catholic, Methodist, Native American, United Church of Christ, Moslem, Unitarian, ecofeminist, and other native leaders will trek "forest-monk-style" to northern Thailand villages, bear prayerful witness, and provide written descriptions to the Thai Prime Minister and home press. The first walk starts in December 1997.

Contact the Boulder Institute for Nature and the Human Spirit.



THE TEL'ADA CENTRE, SYRIA

At the site of one of the oldest Christian monasteries, from the fourth century, a Christian/Muslim project to restore the monastery and to teach organic farming and environmental studies has been organized by the Patriarch of the Syrian Orthodox Church and his clergy, the Grand Mufti of Aleppo, the Syrian government, the Vatican, and the Archbishop of Canterbury's Special Fund (about twelve to fifteen percent of the Syrian population is Christian). The Tel'ada Centre will become the main center for Christian/Muslim dialog and the restoration of demonstration organic farms. The Alliance of Religion and Conservation has contributed funding for the organic farm.



The Cathedral of Saint John the Divine

The Very Rev. James Parks Morton worked in social justice ministry before joining the Cathedral in 1972. In dialog with the Lindsfarne mental mafia, especially Thomas Berry, Dean Morton had a "revelation": the Earth had been left out of his studies at Harvard, Oxford, and Episcopal seminaries.

He has served as the president of the Temple of Understanding since 1984 and now heads the Interfaith Center of New York (570 Lexington Avenue, Room 2209, New York, NY 10022).

"Ecology is a way to understand life in our time. It is a way to do theology. I don't mean it is a way for priests, rabbis, babas, or mullahs to split hairs. I mean it is a way to understand the workings of the Reality which for me as a Christian is Christ, and for you is Allah or Yahweh or Buddha or the Great Spirit of Tao.

"In every age, there is an image whose power is commanding. In the fourth century, Augustine made it possible for people to see God's work in the world by means of the image of the city. . . . In our time, the sciences—particularly ecology—give us a new language to experience communion with God. We can have a relationship to the divine that is as powerful and living as was Augustine's. . . . And we must. The planet will not long continue to tolerate the abuse to which we have subjected it .

"We don't do theology, and then think about environment. Our theology is ecological and our ecology theological. If you continue the long divorce between nature and human nature, then you will regard this

idea as flaky, if not downright heretical. If, on the other hand, you regard Creation and communion as the two fundamental facts of the universe, you will get the idea." —REV. JAMES PARKS MORTON

If there are one place and one person that have nurtured the blending of faith-work and environmental concern, they are the Cathedral of St. John the Divine in New York City and the Very Rev. James Parks Morton, who served as Dean for twenty-four years. Into the Cathedral have come the homeless, renowned politicians, religious spokespeople, elephants and pets, scientists, shamans, great musicians and performers, as well as loving New Yorkers. Its sermons have forged a new liturgy of sacred ecology. Proclamations written there, especially the Joint Appeal by Religion and Science for the Environment, put power brokers in Moscow and Washington on notice that the fate of the planet must have a high priority. Cathedral-sponsored projects in victimized, discriminated-against, and poor neighborhoods set the standard for urban ecological hope.

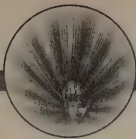
Since the Cathedral's cornerstone was laid in 1892, it has radiated a Statue of Liberty nuance. Called the "House of Prayer for All Peoples," it has Naves of the Seven Tongues, each for a recent immigrant language. Dean Morton pictures the Cathedral's role as "Inter, inter, inter! International, interfaith, intercultural! Those are the realities of the new city." Since the 1970s, a fourth "inter," the interdependence of life on the planet, has been blended into the vision. When New York needs a safe haven to discuss racism or a future Green City, it relies on St. John the Divine. Cathedral projects range from the first west side recycling center to gardens to involving high school students in water quality assessment.

Even more remarkable is the Cathedral's ability to transfer new thoughts about Earth spirituality to the "heavies" in politics, religion, and science. From the Cathedral's pulpit have come the words of HH Dalai Lama, Rene Dubos, James Lovelock, Carl Sagan, Thomas Berry, and Archbishop Desmond Tutu. Dean Morton and Paul Gorman of the National Religious Partnership for the Environment (p. 12) organized congregations and religious leaders (Assisi, 1987), added politicians (Oxford, 1988), and then scientists (Moscow, 1990). The next year, Sens. Al Gore and Timothy Wirth met at the Cathedral with a wild mix of American religious leaders and scientists; they took the resulting Joint Appeal to Congress in 1992. If sacred ecology becomes a driving force, moving hearts in the twenty-first century, historians will trace the spring of hope to the upper west side of Manhattan Island. ⊕



MARY BLOOM





National Religious Partnership for the Environment

Paul Gorman, Executive Director.
1047 Amsterdam Avenue, New York, NY
10025; 800/200-8858; 212/316-7441;
fax 212/316-7547.



The mother lode for major American faith groups who want to develop environmental programs, **NRPE** is without a doubt the first place to call for

help in organizing. The primary members of the **Partnership** are the US Catholic Conference, the National Council of Churches of Christ, the Coalition on the Environment and Jewish Life, and the Evangelical Environmental Network (see discussion of each of these in following sections). Together, these groups could influence as many as 150 million Americans.

In 1993 the **Partnership** began a \$1.6 million annual program to place issues of environmental sustainability and justice at

the heart of religious life in America. **NRPE** provides comprehensive, faith-customized "action kits" containing data on environmental conditions, theological imperatives for action, worship resources, educational curricula, and information on greening work and home places, as well as advice on how to initiate and conduct specific community action campaigns. Their list of engaged religious environmental groups sowed the seeds for many of the hands-on faith-in-action profiles in the following pages.

Ask for their *Directory of Environmental Activities in the North American Religious Community* (\$12.95, Kutztown Publishing Company). We had a dog-eared copy on almost every desk during our research for this issue. This document covers more groups and resources than we could ever hope to include, on the national, regional, and community levels. —ET



Caring for Creation An Ecumenical Approach to the Environmental Crisis

Max Oelschlaeger. 1994; 285 pp. \$15.
Yale University Press.

A professor of environmental ethics, Max Oelschlaeger approaches the role organized religion plays in the environmental crisis with skepticism, then concludes that religious thought is critical to a full understanding of the roots of the crisis, and to a comprehensive response to it. He examines a broad range of Western faith traditions (missing Buddhist, Islam, and Hindu), including the "old-new way" traditions of America. **Caring for Creation** is the best academic book in its field.

With readable prose it applies socio-linguistic and ethical analyses and systematically documents the principal teachings on religion and environment. —NRPE

Interfaith Coalition on Energy

Andy Rudin, Director. 7217
Oak Avenue, Melrose Park,
PA 19027, 215/635-1122.

The message on their answering machine sums it up: "Our goal is to help religious congregations reduce energy costs to create dollars for community service." *Comfort & Light* reports on heating and energy management training workshops and provides detailed issues to think through from an energy perspective—should that huge, drafty stained glass window be glazed or not? How many exit signs are in the building? How could they be better lit? **ICE** illuminates.

Interfaith Center for Corporate Responsibility

Timothy Smith, Executive Director. Membership, \$35/year. 475 Riverside Drive, Room 550, New York, NY 10115, 212/870-2295, fax 212/870-2023.

And then there's money. The religious community

(and others) will receive wise counsel from **ICCR** on socially and environmentally sensitive investments, and can participate in holding corporations accountable for unjust or harmful business practices. **ICCR** members include Protestant, Roman Catholic, and Jewish institutional investors, with combined portfolios worth an estimated \$70 billion. They

sponsor shareholder resolutions, conduct public hearings, publish special reports, and testify at UN, US Congress, and state and local legislatures. Action like this, backed with economic pressure from religious investors, helped convince over 160 corporations to sell their South African assets and eventually helped bring an end to apartheid.



WORKING PARTNERSHIPS USA, VEATCH PROGRAM. SEE P. 46.

“ In what is best understood as an enormous irony, religious discourse—which has become increasingly privatized and therefore irrelevant to public affairs—may reemerge in the public forum through environmental concern. Such renewal is essential, since the legitimating narrative of the West hangs on the idea of progress, itself derived from Judeo-Christian traditions. The modern narrative not only is incapable of sustaining but is undercutting the idea of progress: a society that undercuts the ecosystems upon which its existence depends is self-defeating.

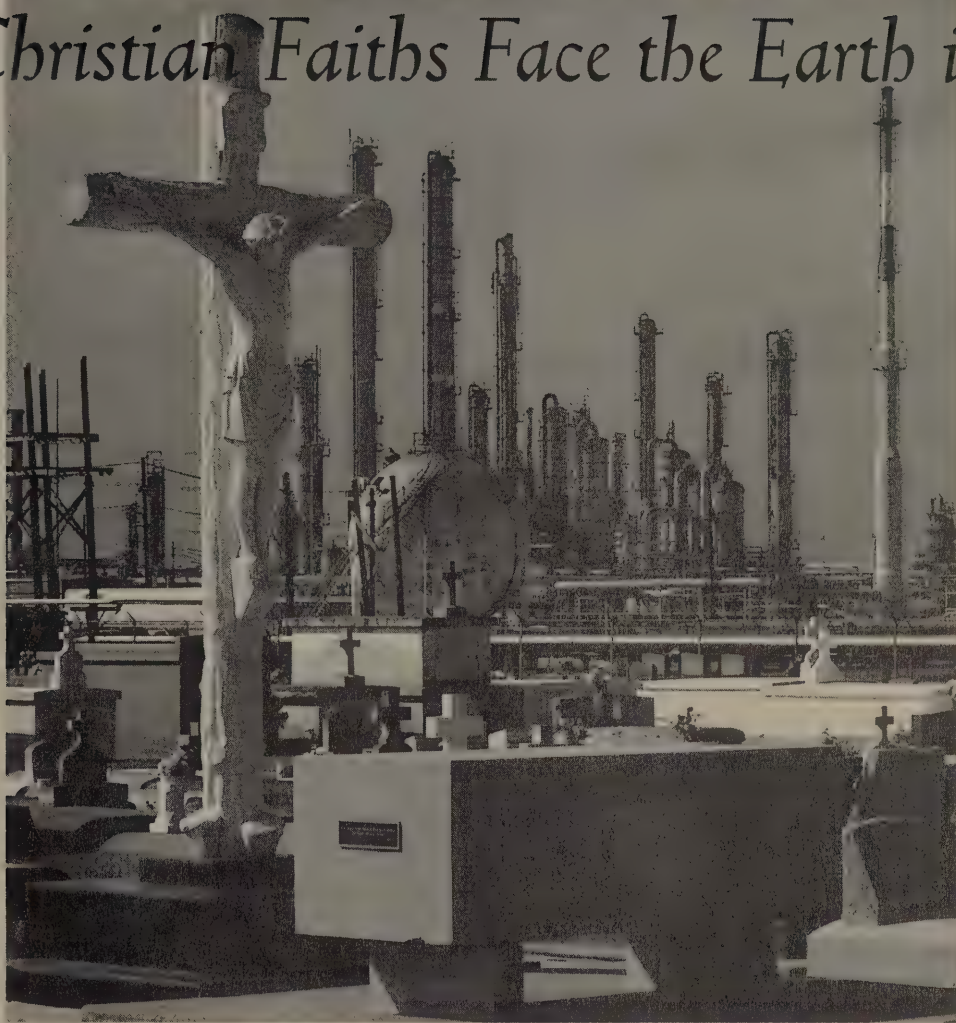
“ The reinterpretation of sacred story in a time of ecocrisis does not sacrifice scientific judgment on a holy altar of religious truth. *Caring for creation* is consistent with ecology. We should recall that any science, including ecology, ultimately finds its purpose in a larger cultural context: it does not define that context. Ecologists themselves are acutely aware of this. Religious discourse can be consistent with scientific discourse, that is, ecologically plausible, but it can also evoke sentiment. So interpreted, religious discourse that articulates a metaphor of caring for creation is fully compatible with our controlling memes—on personality and time. These memes of person and history distinctively mark Western culture.

YELLOW PAGES

There is a River

Judeo-Christian Faiths Face the Earth in Crisis

An
Interview
with Paul
Gorman



Crucifix blesses a cemetery next to the Union Carbide plant in Taft, Louisiana.

KARL GROSSMAN

Peter Warshall: What's important about the current response of organized religion in America to environmental issues?

Paul Gorman: Since I serve a diverse coalition, I can only speak as an individual, and of the activities of the Judeo-Christian community in this country, although I want to acknowledge other traditions, including those of indigenous peoples.

First, then, it's important that organized religion in North America is responding at all, or at least, across so broad a spectrum. It is taking place nationally and locally; in congregations, seminaries, and public policy agencies; among scholars, clergy, and activists; across the broad fabric of religious life.

There's a nice exchange that illustrates the heart of the contribution, between people familiar to *Whole Earth*

readers. In his essay, "Two Economies," Wendell Berry reports on a discussion with Wes Jackson of what would be the most benign model of an economy. Berry suggests one based on energy. Not comprehen-



HELENE GLANZBERG

In a quiet moment, by a creek running through a moraine in upper New York State, Paul Gorman had an

intimation that his life would focus on the Earth in crisis and religion's response. Soon after, Prince Philip wrote, requesting that he help organize a meeting on religion and the environment at Assisi. Paul is now Director of the National Religious Partnership for the Environment (see p. 12). His father was an Irish-Catholic philosopher and his mother was a Russian Jewish Metropolitan Opera soprano. He learned ecology playing stickball on the streets of New York. During his years working in the US Congress,

he organized the congressional delegation for the Selma March for civil rights, and was a legislative assistant to the Foreign Relations Committee on Vietnam.

Paul kindly spent hours answering questions that concerned us at *Whole Earth* about the Judeo-Christian response to the Earth in crisis. As generously, he and Joan Minieri, Director of Communications at NRPE, helped us find and review the interfaith, Jewish, and Christian sections (all goofs are our own).

Caritas, compadre. —PW



sive enough, replies Jackson. "What then?" asks Wendell. "[Wes] hesitated a moment and then, grinning, said 'The Kingdom of God.'" And Wendell speaks of both of them having found it "indispensable." "The first principle of the Kingdom of God is that it includes everything; in it, the fall of every sparrow is a significant event. We are in it whether we know it or not and whether we wish to be or not. . . . Everything in the Kingdom of God is joined both to it and to everything that is in it."

So religious thought offers a cosmology which



binds together and accords meaning to creation. In my tradition, God also declares it "good." Nature is understood as sacralized. All life has intrinsic value, which establishes human responsibility. Religious teachings have long stressed virtues which encourage sustainable behavior—reverence, moderation, frugality. The biblical traditions emphasize inter-generational responsibility.

Many of our historic social struggles have been sustained by religious vision. So there are resources here for courage and endurance sustained by prayer, study, solidarity, and faithfulness to something larger than a particular issue. The religious community in North America assembles economic, racial, and cultural diversity. I would say that when religious life comes freshly forward at its best, there's a kind of ripple which stirs *universal* moral and spiritual aspirations.

The goal is not to make a contribution to "environmentalism" as such, but rather to be faithful to God in such a way as to best serve creation. It's striking that this vision and these resources are being welcomed beyond the immediate perimeter of traditional religious life.

PW: Why hadn't the organized American religious community come forward sooner?

PG: Well, it's a mix: inertia and myopia, fear, and also prudence and discernment. With the retreat of public resolve, the religious community's perennial social justice agenda has demanded still more effort. But we're talking about something momentous. Ancient faith traditions are hearing a call to engage

EL PUENTE

In 1996, this unique partnership of Latino, Hasidic, and African-American communities, working through an even wider range of religious and other institutions, defeated plans for a fifty-five-story incinerator at the former Brooklyn Navy Yard. A Latino community development organization, El Puente, and the United Jewish Organizations are now exploring new alliances to document and fight the cumulative health effects of traffic, congestion, diesel fumes, and toxic contamination from petrochemical and industrial plants in Greenpoint-Williamsburg, the last industrial center in New York City. As with other multifaith urban initiatives, El Puente has begun to de-emphasize connections to specific faiths in order to reduce alienation of local support, or to encourage more people to participate. However, they still abide by their twelve founding principles, which include love and caring, creation of community, and peace and justice. Presently, El Puente works with the Board of Education and other groups on a major brownfields initiative—attempting to reclaim two buildings, the sites of a former glue factory and electroplating plant, where they can create a new headquarters from which to plan and launch further actions.

El Puente

John Fleming, Organizer. 211 South Fourth Street, Brooklyn, NY 11211, 718/387-0404; fax 718/387-6816.

TRI-CITY STEWARDSHIP

In February, the Proctor Lake Campaign in "Cajun country" jumped to life. Catholic, mainline Protestant, and Evangelical congregations in this area south of New Orleans have each adopted a storm drain in Morgan City, which is below sea level and requires rainwater to be pumped out. The congregation members work to keep their drain, the pumps, and the lake free from clogging trash. These churches call themselves "Protecting God's Creation Congregations." Together, they have agreed to worship, educate, and act continuously to rectify problems in their area, such as the fact that Lake Palourde, a source of drinking water for Morgan City, is also located in the parish (county) with the second highest toxic air emissions in Louisiana.

Tri-City Interfaith Stewardship Initiative

Rob Gorman, Assistant Director. c/o Catholic Social Services, PO Box 3894, Houma, LA 70361, 504/876-0490.



entirely new world historical conditions. Such engagement doesn't happen overnight.

Organized religion has always addressed certain issues labeled environmental: in public health, agriculture, economic and social development. But major new insights have been set before us by the ecological sciences. There's been a need to learn, and to be prudent in areas where there is and isn't consensus on data.

To take hold, moreover, it's essential that these new concerns be integrated into existing programs and institutions. We are a "multi-issue" community. It's far more valuable not to place something called "environment" off in one corner; we should rather measure all human activity against the standard of care for creation.

The starting point is theological. Who are we, and why are we here? Where is *here*, for that matter? Where is home? Earth, universe, the abode of God's Love? What principles guide relationships within the



diversity of what God created and beheld as good? What exactly is so *good* about it, for that matter? These are not exactly new questions. But they cry out to be revisited and understood anew.

What must it mean, now and henceforth, to be religious, in light of the condition of God's creation at human hands? You've got to measure pace of response against the magnitude of that question.

PW: How are faith groups moving forward with their responses?

PG: Distinctively. By being themselves, afresh. I can really only speak of Judeo-Christian traditions in the United States. You have to appreciate the excitement, for those working within them, of finding fresh power in perennial teachings. It is a process environmentalists might consult and explore.

For example, many environmentalists encounter the natural world as wondrous, beautiful, precious. Genesis offers a powerful addition. God declares all creation to be *good*. "Good," as reflecting divinity—well-made, whole, wondrous, and *loved*. But also "good" as encompassing inherent moral value, which mandates the duty to cherish and preserve. What would it mean for a culture to abide by that teaching alone?

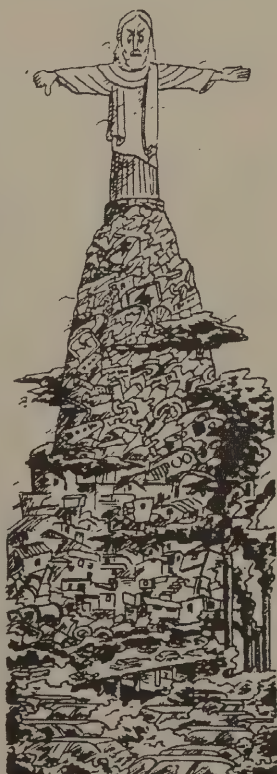
Mainline Protestant communions have sought to establish a theological perspective on eco-justice, linking equity and sustainability. This vision provides a comprehensive moral framework which establishes environmental justice as a way of looking at the entire world, not simply a subset of environmentalism.

Catholic theology affirms "a sacramental universe" which, as the bishops' pastoral writes, "discloses the

METROPOLITAN ALLIANCE OF CONGREGATIONS

Believing it is their responsibility as co-creators with God to make just communities and to use resources wisely, MAC works to control Chicago's sprawl (forty percent land growth with just three percent population growth) and the flow of development money to outer suburbs at the expense of inner cities. 120 Chicago congregations from various Christian, Muslim, and Jewish traditions are helping develop a twenty-five-year \$650 billion transportation plan for Chicago.

What makes the Alliance different from typical environmental groups? Don Floyd, lead organizer of MAC says, "We're not about solving the problem, we're about building powerful organizations. We're going to do as much as we can to get as many people as possible involved. What we add to the solution is significant grassroots power." MAC fosters partnerships that may cultivate solutions from within the community, then turns to advocacy and policy organizations when it needs specialized information and research. Each congregation provides its own leadership, and membership dues help the Alliance with its drive to demand representation in public land use and education reform decisions.



RIO'S SUGARLOAF MOUNTAIN — TERRA VIVA

MAC

Mary Gonzales, Director. 203 North Wabash Avenue, Suite 808, Chicago, IL 60601; 312/357-2639; fax 312/357-6735.

LLAMA PACKING FOR LOVE OF GOD'S EARTH

"One of our primary tasks is to care for creation," preaches Peter Illyn. "It's how we're going to be judged." The Pacific Northwest Director of the Evangelical outreach program, Green Cross, Rev. Illyn leads believers into the wilderness on llama packtrips. Every summer, he takes his message to small groups (e.g., a Christian university biology class) who work in partnership with the Forest Service on biological habitat projects, such as measuring the bottoms of alpine lakes or performing water quality tests, following accepted methods of scientific study. In the evening, back at camp, in the glory of the old growth forest and the stars, they pray and discuss the wonder of creation. Rev. Illyn encourages those who participate to become leaders, to return to their own communities and stake out land to steward. He believes he has tapped into a world of people relieved to find it is their duty, as stated in the Bible, to care for the earth.

Green Cross

Peter Illyn, Northwest Representative.
6308 NE 88th Street, Vancouver, WA 98665; 360/574-8230, ces@worldaccess.com.

Creator's presence by visible and tangible signs." Land, wind, waters, all species, all life "disclosing" God. And Catholic social teaching places environmental destruction within the framework of the commandment, "Thou shalt not steal." That's *Law*. An interesting message to share with legislators.

Within the historic Black Church traditions, the link is drawn between the Sinai Covenant, through which oppressed people are delivered, and God's Noahide covenant, after the flood, "between me and you and every living creature that is with you for perpetual generations" (Gen. 9:12). Here's the first and last word on biodiversity and endangered species. In Eastern Orthodox thought, Christ redeems all creation. Not just well-mannered people. The entire cosmos.

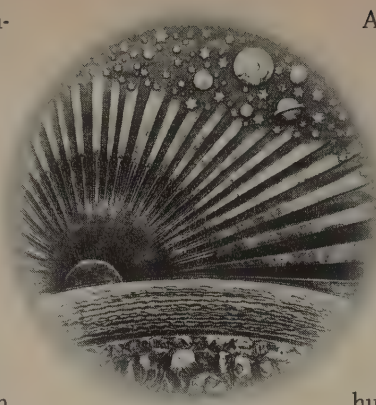
Or consider over-consumption and over-development. The heart of the Jewish Sabbath—that most profound observance designed to counteract human hyperactivity—is a proscription against *melacha*, or "work" understood as manipulation of the environment. That's what one stops doing, weekly, and every seven years. We rejuvenate and allow the Earth to do so as well. Imagine an economy bound by limits on *melacha*.

A Declaration signed by hundreds of evangelical Christian leaders affirms this first principle: "In Jesus Christ, believers are forgiven, transformed, and brought into God's kingdom. . . . We seek a deeper reflection on the wonders of God's creation. . . . We encourage Christians to incorporate this extravagant creativity of God into their lives."

Obviously, it's a deep personal choice whether to embrace such beliefs. I think it's been a loss for secular environmentalists—perhaps from bias or difficult past experience with organized religion—not to invite them in for reflection, for the amplitude of vision belief provides. It's also the religious community's responsibility to offer its teachings spaciously and hospitably.

PW: Can you speak a little more about the variety of environmental work being undertaken by the organized religious community?

PG: Holman United Methodist Church, in Culver City, California, worked to stop dumping of radioactive waste at a Native American burial ground. In what became an ABC-TV documentary, young people and Jewish Theological Seminary staff hiked the



Appalachian Trail, observing and reflecting upon Jewish teachings about the natural world. The Minnesota Catholic Conference is working against the impact of electric industry deregulation or restructuring on low-income households and the environment.

In Mississippi, Jesus People against Pollution—there's a name—has protested the condition of Superfund sites and the effect on human health of dioxins. The sisters at Full Circle House of Prayer are working with young people to protect Michigan wetlands by controlling the spread of loosestrife [an invasive European plant replacing native wetland species]. We've documented approximately 2,000 congregations which have undertaken such environmental initiatives, and there must be several we've missed for every one we've found.

But the goal is to weave the concern for environmental justice and sustainability across the entire fabric of religious life. I've mentioned theological inquiry. Seminary curricula are being developed and are beginning to be integrated with the education of the next generation of clergy. Educational materials have been sent out to over 100,000 congregations. They start with scriptural teaching; resources for prayer and study; ideas for sermons and care of

"IT'S ALL ABOUT WATER"

The Episcopal Diocese of Massachusetts, the largest in the US, has, under the leadership of Bishop Tom Shaw, reconfigured itself into a system of Deaneries based on watersheds rather than arbitrary political grids. Steve MacAusland, the Episcopal Environmental Coalition's New England representative, was instrumental in lobbying for this bioregional change. Today he spreads the message to church youth of mixed cultural, racial, and economic backgrounds by guiding canoe trips that explore diocesan rivers and watersheds. "Our message," he says, "is that we are all connected by God's gift of water, rich or poor, black, red, yellow, and white, upstream and downstream, wilderness, rural, urban, human, and otherwise. If we are going to get the church involved in stewardship of Creation, we need a starting place everyone can agree on, and that is water."

At the national church's recent General Convention in Philadelphia, MacAusland led two events on the Schuykill River, a canoe trip for church leaders and a riverside "Service of Thanksgiving for God's Gift of Water." Rt. Rev. Steven Charleson, a Choctaw Indian and former Bishop of Alaska, preached on how individuals, as drops of water, can come together as streams and rivers to wash injustice away. After the service, participants proceeded to the Church of the Advocate on the city's south side for a service honoring those who have struggled for justice. MacAusland wants to be sure that environmental healing includes social justice and cities. "Same Creator." Using MacAusland's Massachusetts model, the EEC plans to develop a watershed program throughout the country, bringing churches together around the gift and issue of water.

Episcopal Environmental Coalition

Programs, Steve MacAusland, 121 Sandy Valley Road, Dedham, MA 02026; 617/329-7335, fax 617/329-658, commed@world.std.com.

grounds; approaches to liturgy and energy; religious education for children; and scientific data which has passed standards of authoritative consensus. They present opportunities for preservation and restoration in the community or watershed.

There have been trainings for over 3,000 clergy and lay leaders. Scholars' conferences are convened and publications produced.



We've paid close attention, not only to sharing our messages throughout our own extensive communications infrastructure, but also through the secular media.

PW: What about political advocacy?

PG: The Partnership takes no positions on environmental legislation. Its member groups do, as on many other issues. We bring delegations of some of the religious community's most senior leaders to meet with the administration and Congress—where we

pointedly emphasize religious and moral perspectives on policy.

Some advocacy efforts have been more publicized than others, partly because of media fascination. Evangelical Christians played an important role in preventing revision of the Endangered Species Act. In Northern California, a group of "Redwood Rabbis" have worked to preserve old growth forests.

The National Council of Churches of Christ recently sent educational kits on Climate Change to over 50,000 congregations. A Black Church Environmental Justice Network is focusing efforts on poor and poisoned communities in the South. The US Catholic Conference has developed a nuanced moral perspective on "Takings," how to discern and protect the common good where environmental protection and private property seem in conflict.

But we're not lobbyists. We're not the environmental movement at prayer. I'd almost want to say we're not the environmental movement at anything; and not even environmental, inasmuch as the word is so reductionist. This is a

process by which a broad spectrum of faith groups are seeking to better understand the purpose of creation and thereby be more moved to cherish and preserve it.

PW: What have been some of the obstacles to engagement by organized religion?

PG: None, of course. It's been totally unanimous, harmonious, and effortless.

Seriously, the obstacles are both internal and external. The greatest internal obstacle is short-sightedness: an insufficient appreciation of urgency and scale; of what we have to challenge in our own habits of thought; of how much we have to offer; of how profoundly this can affect the renewal of religious life itself.

But there have been at least two more objective concerns, with basic issues underneath: the relationship of environmentalism to social justice, and the perception of it by some in the faith community as a kind of religion in itself—New Age, pagan, and so forth.

Amidst the moral anarchy of globalized economics, the faith community has unique power to champion the poor. This has been a perennial priority, but particularly under siege at the moment. How does this play out for environmental concerns? A senior religious leader once said to me, "How come I never see any *people* in those environmental calendars?" I took him as pointing to a challenge in religious life and public policy: how to integrate justice and ecology.

PW: Isn't it understood that sustainability requires both economic justice and environmental protection?

PG: That's the formula. But people's starting points affect how far they stretch. Organized religion has established biblically based, moral foundations for commitment to *human* justice. Enters now: the rest of life. What must justice mean with, say, wetlands, wildlife, and wilderness in the picture? What value

If the basic challenge is to love God and neighbor, the neighborhood is suddenly bigger, the neighbors more diverse, and therefore the opportunities to know God's love more rich.



The Rev. Ernest Gibson recycles glass at First Rising Mount Zion Church in Washington, DC.

PRESBYTERIAN GREENS

"Heaven on Earth" was this year's theme at First Presbyterian's ten-year-old environmental day camp. Each group of preschoolers through fifth graders had a habitat to learn about—desert, forest, ocean. Cathy Yost, the program's co-chair, says the most rewarding result is to observe the kids as they go home and teach their parents. Shared family learning in the church's Agape Garden means families are "connecting to earth, kneeling, with the sun on their backs." Hundreds of pounds of produce are donated to food pantries and local soup kitchens.

Yost formerly headed Presbyterians for Restoring Creation, a national project of the Presbyterian Church (USA) that recruits, trains, and awards recognition to dozens of locally based environmental organizers concerned with environmental awareness and social justice.

First Presbyterian Church

Cathy Yost, Presbyterian Greens Co-Chair. 100 E. Adams Avenue, Kirkwood, MO 63122; 314/965-0326, fax 314/965-3861, yostdj@aol.com.

must be given to the natural world? If there's been a pattern of neglect, how about some affirmative action? But to serve the common good. Conservationists and timber workers, both caring for the same forest, pray in the same pews.

As for people being left out of those environmental calendars? This is not simply an issue of integrating social justice and ecology. It's also about the appropriate place and proportionality of the human person. This can become a very charged question.

For example, humankind is profoundly indebted to those scientists and environmentalists who have lifted up the natural world and said, in effect, "Behold



its beauty, and the peril to it!" I understand how people so deeply immersed in documenting our affliction of nature are troubled when they hear the human species placed in a position of dominion in a hierarchy of creation.

But I hear in some environmental thought a denial of human uniqueness, which doesn't ring true to my faith. And I think, through a few twists and turns, this mindset has contributed to a flight from concern for human justice. I've wondered if, deep down, people are turning to efforts on behalf of nature to avoid facing our failure to heed and heal *one another*. Back to the garden, forgetting what is said to have happened there?

You can encounter both myopia and romanticism in all this. There's a challenge for those whose passion for social equity can constrict a more expansive vision of creation. And a challenge for those whose rapture with the natural world may risk a flight from commitment to social justice.

PW: You spoke about concern for environmentalism as an alternative religion or "New Age."

PG: There is a yearning or intuition growing in the culture, for an understanding of "spirit" as being somehow active within creation. The natural world presents somehow more than inert matter here by happenstance. The paramount issue, for us in the Judeo-Christian tradition, regards worship of creation rather than of God as Creator. And how could that be anything but a fundamental point of difference?

For us there is indeed a process of "religious imagination" with which one can explore this desire to feel divinity at work in creation. Scripture, prayer, contemplative reflection—all are directed to discern God's handicraft here. The Psalms are full of such affirmation. And as this happens, particularly when we see the handicraft under such assault, we draw it into ourselves, and cherish it more, all of it, the universe.

PW: Speaking still of obstacles, is there resistance in the religious community to the possibility that environmental sustainability will mean curbing consumption and lifestyle?

PG: You mean that people will want to hold on to what they have, or

SAVING CITY SOIL

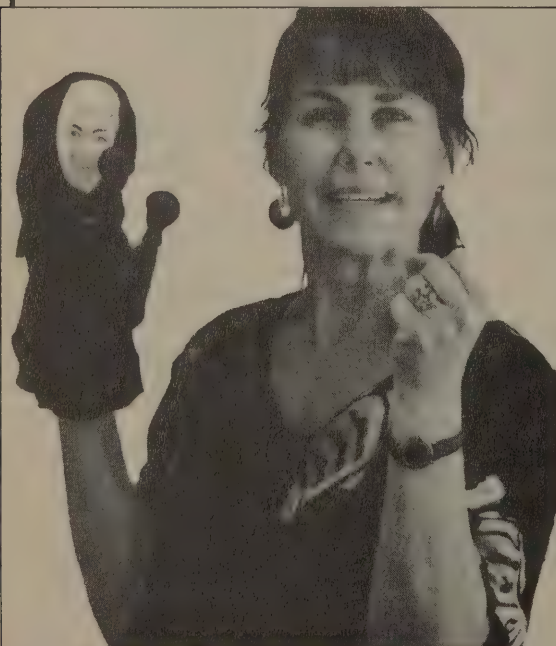
Three years ago, Sister Elizabeth Walters, of the Sisters of the Immaculate Heart of Mary, attended a community meeting at a local Episcopal church. People expressed concern about all the dumping in neighborhood lots. Reverend Ruth Closson asked what should be done, and the people said clear and garden the lots. Sister Elizabeth took them seriously. Today, thirty-two households in this section of inner-city Detroit feed the soil and harvest organic food from sites that used to be crack houses. Their endeavor is called Hope Takes Root.

The Sisters, who have a strong environmental commitment, donated \$4,000. The US Catholic Conference of Bishops gave \$1,500. Local gifts of worms for composting, a truckload of castings, horse manure, and guano freed up some donation money to hire twelve homeless people to clear and cultivate the plots. This year, a fourth city lot has been planted with buckwheat and rye to bring the soil back from decades of abuse. Sister Elizabeth sings high praises for Farm-a-Lot, a group that works with the City of Detroit in managing abandoned property, and has provided all sorts of agricultural advice and assistance. Hope Takes Root has also cleared 120 lots for planting trees, shrubs, and flowers.

All neighbors are invited to participate. When they can't, as is the case with some of the elderly, Hope Takes Root reaches out with smaller gardens and house plants. Sister Elizabeth says it best: "If we look out for the earth, we're looking out for each other."

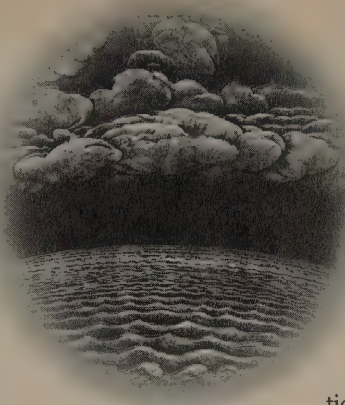
Hope Takes Root Project
1664 Church Street, Detroit,
MI 48216; 313/831-2787.

**Fighting Nun
Punching
Puppet, \$9.50**
from Archie
McPhee &
Company,
206/745-0711.



seek more material comfort? *Moi?* Americans? Humans? There are pockets of religious Americans who seek to live more frugally out of faith, and even obedience. But, more broadly, religious Americans have the same fears and blocks as all Americans about curbing wealth or consumption. *Where they have a choice.* There are a significant number of poor people in our communities where too little, not too much, material well-being is the problem.

However, there is a body of biblical *teaching* which offers a systematic, moral challenge to over-consumption. Psalm 24 proclaims, "The Earth is the Lord's." *It's not ours to begin with:* that's the starting-point and moral context for what we own and consume. Faith traditions emphasize that happiness is not ultimately found in material goods. Scripture warns against the idolatry of wealth: "The love of money is the root of all evil things," (1 Timothy). "Yes, 'do not waste or destroy' is the first and most general



call of God," (Rabbi Samson Raphael Hirsch, Horeb, #56). Virtues which lead to balance are affirmed. Consumption is placed in the context of peace and justice: "You desire and do not have, so you murder; you covet and cannot obtain, so you fight and wage war," (James 4).

Teachings don't always or necessarily transform behavior. Changes in unsustainable consumption will require the use of economic incentive and assurance of economic justice.

But it's hard to find moral teaching on these questions more systematic than that offered in perennial religious thought.

PW: Is there resistance in the organized religious community based on discomfort with ecofeminism?

PG: Our community doesn't exactly lack opportunities for conflict about sexuality and gender. I'd say where there is already nervousness, it deepens, say, with references to "Mother" Earth. There has been a

"We do not have to agree on how the natural word was made in order to be willing to work together to preserve it."

CONGREGATIONALLY SUPPORTED AGRICULTURE

In his booklet *To Till It and Keep It*, Dan Guenther writes that his search for the place of faith in the present agricultural crisis "challenged me deeply and changed my farming enterprise into a ministry of attempting to cultivate parish participation through soil stewardship." Dan and Margaret Guenther deliver bags of fresh produce to Minneapolis-area churches, members of which are shareholders in the Guenthers' organic Common Harvest Farm. The whole gang also gathers out on the farm for harvest celebrations and farm tours. It is faith-based CSA, congregationally supported agriculture (known nationally as Community Supported Agriculture), inspired and supported by the Office of Environmental Stewardship of the Evangelical Lutheran Church in America as well as the Land Stewardship Project.

To Till It and Keep It defends the Bible as an agricultural handbook that "gives a detailed account of the relationship of a people with the land and with a God who graciously provided a process of regeneration that allows us to live securely in the land." Guenther writes of churches that respond to the needs of creation, through seed saving, gleaning, drafting a church food policy, buying clubs, parish partnerships, and so on. His booklet is as rich as good soil with resources on organizations, celebratory dates, and fine advice.

To Till It and Keep It

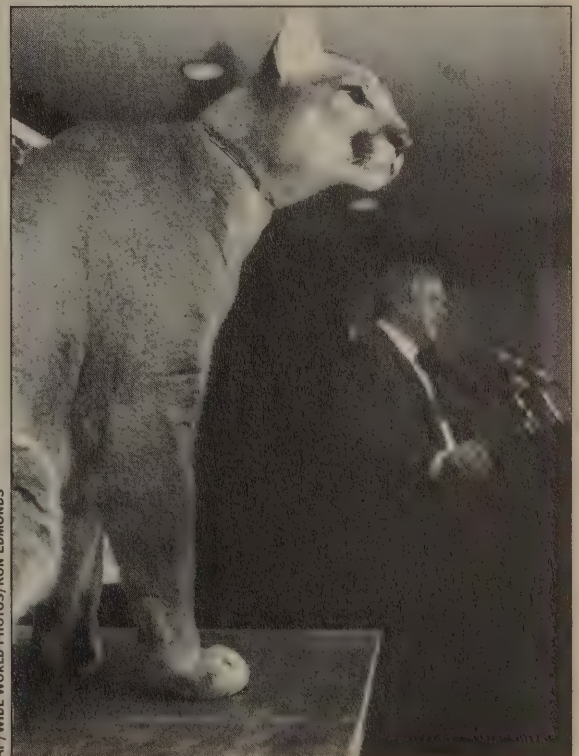
New Models for Congregational Involvement with the Land
Common Harvest Farm, 2796 Cloutier Court,
Osceola, WI 54020.

UNPACKING NOAH

Some determined Evangelicals defend the Endangered Species Act as a modern-day Noah's Ark. To them the Ark story is not just an Old Testament tale, but a culturally cherished and shared story among most modern Americans, secular and religious alike. Testimony before Congress, press conferences, television announcements—Evangelicals are comfortable with the media—all help the EEN and others challenge the political agenda to dismantle protections provided by the ESA. Calvin DeWitt, founder of the AuSable Institute and spokesman for more biodiversity-friendly legislation, loves to unpack the story of Noah verse by verse, because, he says, "almost every issue [concerning endangered species] is addressed there."

One of the big questions that often arises when discussing the issue: "Isn't saving people more important than saving species?" To which DeWitt answers: "Simply look at how God prioritized. It depends on what kind of people. You save the people who save the species. Those who follow Noah's example are answering to a higher power than Bill or Newt."

Evangelical Environmental Network See p. 23.



AP/WIDE WORLD PHOTOS/RON EDMONDS

powerful critique of patriarchy in which subjection of women is linked with domination of the Earth. To me, they are fundamentally related, and the calls for redress are complementary.

PW: What has been the response of the scientific and environmental communities to organized religion's activity?

PG: It's an interesting story. The Partnership was partially spurred by a group of Nobel Laureate and other eminent scientists who, in 1991, sent an Open Letter to the Religious Community. Here were "non-believers" who, in their appeal for religious engagement, wrote, "As scientists, many of us have had profound experiences of awe and wonder before the universe. . . . Efforts to safeguard and cherish the environment need to be infused with a vision of the sacred."

That language had quite an effect. It made possible some important conversations, and helped provide sources of reliable scientific information. There was one fascinating meeting, attended by participants as diverse as a senior representative of the Southern Baptist Convention and Stephen Jay Gould, where



the final declaration read, in part, "We do not have to agree on how the natural world was made in order to be willing to work together to preserve it."

Despite great differences, participants in these conversations felt a strong pull toward some common vision of the Whole—moral, cosmological, most would have gone so far as to say spiritual. It was palpable, though I don't see any Grand Fusion on the horizon. There's far less conversation than needed. But that's understandable for the moment; the Whole Story isn't written.

PW: How has the environmental community responded?

PG: A concern at the outset was to make clear that this is not about providing shock troops and mailing lists to an embattled green party. Not about the partisan environmental movement but, rather, about religious thought regarding care of God's creation. Whatever impact there is has to come from holding fast to that perspective.

However, some of the most essential contributions for a distinctively *religious* perspective have had great power for people from a secular orientation. I mentioned some earlier: an embracing, purposeful cosmology; the sanctity and inherent value of all life; the link between ecology and justice; moral context for policy; appropriate virtues for sustainable behavior; an invitation to personal transformation; affirmation of happiness as a spiritual, not material, condition; good offices to mediate for the common good.

PW: What strikes you, personally? What will the future bring?

PG: Well, I'm seeing evidence of what was really a

ENVIRONMENTAL MINISTRIES

Native Americans, secular environmentalists, the Physicians for Social Responsibility, and dozens of other groups have fought hard to stop the dumping of nuclear waste in Ward Valley, California, bringing together issues of sacred lands in the Mohave desert and groundwater pollution potentially leaking to the Colorado.

The coalition was almost a winner, but Congress needed one final push. United Methodist Bishop Sano spoke to the Department of the Interior. The Environmental Ministries and the United Methodists in southern California added their moral authority, helped infold other religious groups, and made the difference on the beltway.

Environmental Ministries has a website to spread the word; provides resources on enviro and social justice issues to congregations; works on touchy policy issues in Washington that even beltway enviros hide from—creating an ambience for political change within the religious community. They're one of the few groups with the courage to test their faith and imagination on the hot issues: abortion, population growth, biodiversity protection, and overconsumption.

Environmental Ministries

Peter Moore-Kochlacs, Director. 7528 Garden Grove Avenue, Reseda, CA 91335, 818/344-7870, <http://members.aol.com/petereco>.

SALT OF THE EARTH

"God meant what he said when he called us the salt of the earth," says Reverend Conley. Impressed by the resolve of his church's members, he has led good works to help them educate themselves about the literal and potential health tragedies caused by toxic emissions from a local lead smelting plant. They organized letter-writing and call-in campaigns, protested and held public meetings, even traveled to Washington to testify to Congress. HUD Secretary Henry Cisneros visited the area and supported the church's efforts to close the plant (a success) and to bring in adequate health facilities (another success). Ultimately, New Waverly also acquired financial settlements for people affected by the toxins and the major work of dismantling and cleaning up is happening now. Seven different industrial plants, as well as many Superfund sites, still poison West Dallas. New Waverly stays alert and prayerful and intends to challenge them one at a time.

New Waverly Baptist Church

Reverend R.T. Conley, Pastor. 3431 Morris Street, West Dallas, TX 75212, 214/631-4373, fax 214/631-2523.

strong conviction going in. *Care of creation brings life to faith.* That is, the environmental challenge brings issues of Life powerfully before religious reflection; and, reciprocally, a more cherishing engagement with Life revitalizes faith itself.

You do come to a point where all of this is really about a fundamentally strengthened sense of Life within the culture and politics of Death. So it's no longer about environment, but really about the freshness and fullness of every moment, in everything you do.

Biblical teaching refers to "signs of the times" as presenting unique conditions for growth in faith. In the destruction of planetary environment, such signs seem evident. But new opportunities for love and courage and knowledge of God inhere within these signs. In our generation, the life of faith and the

affliction of nature are in dynamic counterpoint. The call is to somehow inhabit that counterpoint. So, in some sense, I feel deeply at home, lucky to be doing the work of this generation. If the basic challenge is to love God and neighbor, the neighborhood is suddenly bigger, the neighbors more diverse, and therefore the opportunities to know God's love more rich.

What are the prospects for this work?

At times I'm deeply frustrated with myopia and apprehensiveness in the religious community. What's the fear! Then I'm inspired by the perseverance of colleagues in this and other great struggles.

If, as is said in the Old Testament, "There is a River," I do believe the current of this one—the religious community's mission of caring for creation—is now irreversible. ⊕

The medallions illustrating this interview are from the bronze door panels in the main entrance of the Cathedral of Saint John the Divine, New York City, Henry Wilson, sculptor.

THE CANTICLE FOR BROTHER SUN

FRANCESCO D'ASSISI, 1182-1226

TRANSLATED BY JEROME ROTHENBERG

EXCERPTED FROM *THE LANGUAGE OF THE BIRDS*, SEE P. 51.

*Most high omnipotent good lord:
all praise is yours & honor glory
every blessing
yours & only yours
& no man living fit to say your name*



Be praised my lord with all your creatures
but especially with Mr. Brother Sun
because you show us light & day through him
& he is lovely glowing with great shine
from you my lord: his definition

Be praised my lord for Sister Moon & for the stars
because you made them for your sky their
loveliness is white and rare

Be praised my lord for Brother Wind
& for the air & cloudy days
& bright & all days else because
through these you give your creatures
sustenance

Be praised my lord for Sister Water
because she shows great use & humble-
ness is hers & preciousness
& depth

Be praised my lord for Brother Fire
through whom you light all nights upon the earth
Because he is too lovely
full of joy & manly strength

Be praised my lord because our sister
Mother Earth sustains & rules
us & because she raises
food to feed us: colored flowers
grass

Be praised my lord for those who pardon by
your love & suffer illness & grief
Bless those who undergo in silence
the poor for whom you hold a crown

Be praised my lord for Sister-Death-of-Body
whom no man will escape
And pity those who die in mortal sin
& everyone she finds who minds you
bless: no second death
to bring them hurt

Oh praise my lord & bless my lord & thank
& serve my lord with humbleness
Triumphant



Christian Faiths

National Council of the Churches of Christ

475 Riverside Drive, New York, NY 10115; 212/870-2141.



NCC is the major collaborative organization for mainline US Protestant and Orthodox denominations, and a pioneer in environmental justice work.

Most of the major resources listed below, in addition to a longer selection of books, videos, and curricula (most under \$15), are available from NCC's Environmental Justice Resource Distribution Center, PO Box 969, Elkhart, IN 46515-0968; 800/762-0968 or 219/264-3102.

The NCC's Environmental and Economic Justice/Hunger Concerns Working Group produces *God's Earth Our Home* (\$10), a resource pack for congregational study and action for Baptists, Episcopalians, Lutherans, Methodists, and many other denominations.

Earth Community Earth Ethics

Larry L. Rasmussen. 1996; 366 pp. \$30, Orbis Books.

Larry Rasmussen is Reinhold Niebuhr Professor of Social Ethics at Union Theological Seminary in New York City. His comprehensive attention to the relationship between environmental protection, social justice, and Christian faith illustrates the prophetic edge of religious thinking about sustainable development. He writes lyrically, drawing upon scripture, and illuminates the powerful resonance of traditional teaching, while at the same time he pushes it to the very frontier of social relevance. His might be heard as the voice of "progressive" protestant thinking about the environment. —NRPE



“God is present in creation’s beauty. The holy most certainly *is* mediated in nature’s grandeur. But God is also present in the crosses of pain and twistedness and whatever other ways by which creation is violated. If God were present only in the beautiful and graced and not in the blighted and disgraced, and if *we* were present only in a redeeming way to creation’s beauty and not in its plunder and rape, then broken creation would never be healed. The only creation saved would be that infinitely small portion that does not stand in need of it. Moreover, avoiding despoiled creation absents us from the very reality for which we are responsible. And it numbs the very senses that are the only sure signs we are alive.

YELLOW PAGES

Interdenominational

Earth Ministry

1305 NE 47th Street, Seattle, WA 98105; 206/632-2426.



Earth Ministry tries to bring home the biblical concept of simplicity,

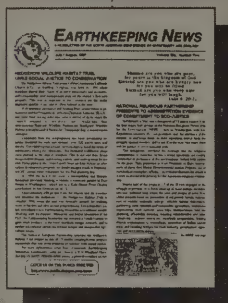
which everyone knows is anything but simple. They offer an eight-week course that examines Christian traditions of consumption, economics, food, theology, and spirituality. They supply study aids to help Christians navigate the complex web of faith, lifestyle choices, and earth impact. Field trips and celebrations, lectures and gardens—these EM programs encourage and reinforce the religious experience of nature.

The North American Conference on Christianity & Ecology

EarthKeeping News. Elizabeth Dyson, Editor. \$25/year membership includes subscription (bi-monthly). PO Box 40011, St. Paul, MN 55104; 612/698-0349, eudyson@worldnet.att.net.



NACCE, which holds that the destruction of the Earth is “the greatest moral issue of our time,” conducts numerous workshops and regional educational programs for church groups to explore the links between environmental activism and social justice. Last year’s national conference focused on subjects on the edge, where most churches aren’t: eco-feminism, eco-justice, alternative economics, and science and cosmology. *EarthKeeping*



News delves ever deeper into these issues, not necessarily with big-name writers, but with stories by people who practice the preaching they believe.

Presbyterian

Presbyterian Church (USA) Environmental Justice, Social Justice, and Peacemaking Unit

Bill Somplatsky-Jarman, Associate. 100 Witherspoon Street, Louisville, KY 40202-1396; 800/524-2612.



Hands On!

Vera K. White. 145 pp. \$4.95. Presbyterian Church (USA), see above.

Provides ways to incorporate environmental concerns through worship, teaching, lifestyle, and action, also highlighting examples of people and churches who have already done so.



For God So Loves the World

Presbyterian Peace Program, see above.

Interactive resource focused on the Biblical mandate to cherish God’s creation. User-friendly material for older youth and adults.

Lutheran

Evangelical Lutheran Church in America Division for Church in Society, Environmental Stewardship Program



Job Ebenezer, Director, 8765 West Higgins Road, Chicago, IL 60631-4190; 773/380-2708.

Faithful Earthkeeping

(The Church as a Creation Awareness Center).

\$14.95 (\$18.95 postpaid), Augsburg Fortress Press; 800/328-4648.

This video, with discussion guide, addresses (1) The Biblical Call to Earthkeeping; (2) Creation’s Praise . . . Creation’s Cry; (3) Earthkeeping: the Church Responds.

Guide to Resource Efficient Church Buildings

Free from 800/NET-ELCA, ext. 208.

Discusses issues related to constructing churches, including energy embodied in production and transportation of materials, use of recycled materials, and disposal of construction waste. Includes a list of manufacturers of resource-efficient building materials.

Evangelical

Evangelical Environmental Network

10 East Lancaster Avenue,
Wynnewood, PA 19096;
610/645-9392,
fax 610/649-8090,
een@esa.mhs.compuserv.com.



EEN has been especially active in support of the Endangered

Species Act (see vignette, p. 19). *Let the Earth Be Glad: A Starter Kit for Evangelical Churches to Care for God's Creation* is an inviting, explicit statement and call to action for believers in Jesus Christ and the Bible



to become stewards of God's creation. Their quarterly magazine, *Green Cross*, published by the Christian Society of the Green Cross, seeks to encourage active care for creation in a way that is faithful to Jesus Christ, biblical revelation, and scientific analysis.

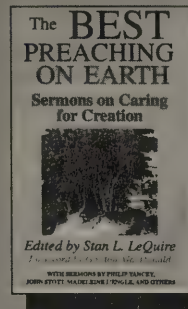
Au Sable Institute of Environmental Studies

7526 Sunset Trail NE,
Mancelona, MI 49659;
616/587-8686, fax 616/587-5353, MJAuSable@aol.com.

A college program founded by Calvin DeWitt for students who want to study applied ecology and environmen-



tal studies in the context of Christian spirituality and stewardship.



The Best Preaching on Earth

(*Sermons on Caring for Creation*). Stan L. LeQuire, Ed. 1996; 221 pp. \$13.50. Judson Press, Valley Forge, PA 19482-0851.

How the best of the green TV sermons will sound, if they're ever preached.

Latter-Day Saints

The Church of Jesus Christ of Latter-Day Saints

Clayton Newell, Public Affairs. 15 East South Temple Street, Salt Lake City, UT 84150; 801/240-2205.



The Church of Jesus Christ of Latter-Day Saints does not have a specific environmental policy.

Their understanding of good works comes through in the Welfare Services Missionary Program and the Worldwide Pioneer Heritage Service Day program (more than half of the 9.7 million Latter-Day Saints live outside the US). Environmentally engaged projects include trail maintenance in Colorado, planting 1,000 trees in Zaragoza, Spain, and cleaning riverfronts along the Ohio River, forests in Ukraine, and a park in Chile.

Times and Seasons, a public service video, and *Center Street*, a TV news magazine

for youth, are some of the Mormon projects that grapple with the state of the environment and how Latter-Day Saints can best respond to it.

Baptist

American Baptist Churches, USA

PO Box 851, Valley Forge, PA 19482-0851; 610/768-2000, fax 610/768-2075.

Southern Baptist Convention

Christian Life Commission
901 Commerce Street, Suite 550, Nashville, TN 37203-3696; 615/244-2495.

The Earth Is the Lord's

(*Christians and the Environment*). Richard D. Land and Louis A. Moore. 1992; 207 pp. \$11. Broadman Press; 800/251-3225.

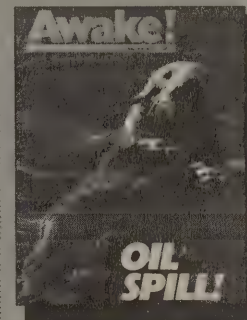
This book is a product of Christian Life Commission of the Southern Baptist Convention. It is critically important to see that even people nervous about liberal politics are concerned about the environment.



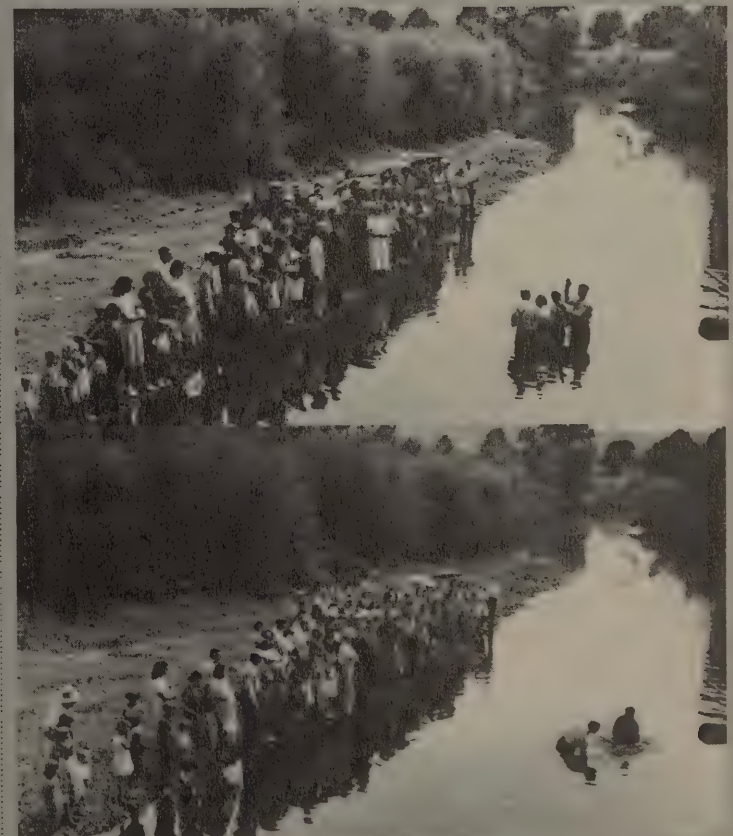
Jehovah's Witnesses

25 Columbia Heights,
Brooklyn, NY 11201-2483.
<http://www.witnessamer.org>.

The August 8, 1996 issue of *Awake!* discusses endangered species concerns.



Baptism of members of Primitive Baptist Church in Triplett Creek.



MARION POST

Roman Catholic

United States Catholic Conference

Environmental Justice Program

Walter Grazer, Director.
3211 Fourth Street NE,
Washington, DC 20017-1194;
800/235-8722 or
301/209-9020.

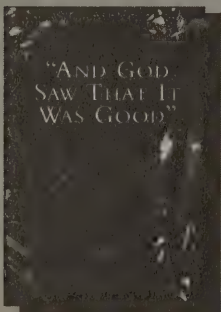


One of the core members of the National Religious

Partnership for the Environment (see p. 12) the USCC sends out a parish environmental packet, "Peace with God the Creator, Peace with All Creation." Primary goal: integrating environmental justice concerns into the life of each parish. Call for a catalog.

And God Saw that It Was Good

(Catholic Theology and the Environment). Drew Christiansen, SJ, & Walter Grazer, Eds. 1996; 354 pp. \$24.95 (\$27.45 postpaid). United States Catholic Conference, address above.



A response to the US Catholic Bishops' call for theologians and ethicists to "explore, deepen, and advance the insights of our Catholic tradition and its relationship to the environment." This cooperative effort by the USCC, the NRPE, and Catholic scholars includes essays on topics ranging from "Cosmology and a Catholic Theology of Nature" to "The Role of Creation in Liturgy and Sacraments."



PRISONER TO A NEW REGIME, 1981, NANCY WOLF, COURTESY OF MARSHA MATEYKA GALLERY, WASHINGTON, DC.

National Council of Catholic Women

Annette Kane, Executive Director. 1275 K Street, Suite 975, Washington, DC 20005; 202/682-0334, fax 202/682-0338, nccw@us.net.

"Of the Earth in Our Hands" is the NCCW's umbrella program; its affiliate member groups work on community projects in conservation, education, and collaboration. They're not everywhere, yet; but they'll be happy to help you locate or organize your own group of eco-Catholic women.

Campaign for Human Development

Doug Lawson, Program Director. 3211 Fourth Street NE, Washington, DC 20017; 202/541-3379.

The anti-poverty arm of the United States Catholic Conference, the Campaign receives about \$9 million a year to fund their low-income social and environmental justice projects. Their primary grassroots organizing centers around issues of toxics, environmental racism, and sustainable agriculture.

Catholic Relief Services

Tom Garafolo, Communications Associate. 209 W. Fayette Street, Baltimore, MD 21201-3443, 410/625-2220.

In 83 countries, CRF works within the policies of the USCC to help establish "right relationships" between the individual and her fellow person, her god, and her environment. Sustainable agriculture projects in Latin America are a large component of their work.

National Catholic Rural Life Commission

David Andrews, Executive Director. 4625 Beaver Avenue, Des Moines, IA 50310-2199; 515/270-2634, fax 515/270-9447, nclrc@aol.com.

NCLRC is focused exclusively on promoting sustainable family farming. Publications, prayer, and parish organizing are the group's lenses.

Episcopal

Commission for the Environment, the Episcopal Diocese of California

Sally Bingham, Director. 1055 Taylor Street, San Francisco, CA 94108; 415/673-5015, ext. 335.

Preaching, teaching, celebrating with the yearly blessing of the animals, the Diocese works to change the spiritual crisis under the environmental crisis. Members have protested at Headwaters and, with deregulation, will help members choose the best energy providers (wind, solar, hydro, petro).

Episcopal Church USA

Martha Gardner, Peace and Justice Ministries Office. 815 Second Avenue, New York, NY 1001; 212/922-5204.

One God, One Family, One Earth

(Responding to the Gifts of God's Creation). \$12 (\$17 postpaid). Episcopal Parish Services, 800/903-5544.

A six-session adult education curriculum featuring discussion on environmental stewardship, theological foundations, and justice issues. Includes an audiotape with musical selections from Paul Winter Consort.

Orthodox

Syndesmos The World Fellowship of Orthodox Youth

c/o Dimitri Oikonomou, 5 Moreton Road, Oxford, OX2 7AX, UK. In the US, Dr. Milton Efthimiou, Ecumenical Officer, Greek Orthodox Archdiocese of North & South America, 8-10 E. 79th Street, New York, NY 10021.

On an isolated peninsula in northern Greece, the Mt. Athos monastery of Greek orthodox monks denied access to all women and most men. The unintended result was one of the least disturbed Mediterranean

biomes. The international Orthodox youth organization, Syndesmos, has joined with World Wildlife Fund Greece to clear the shoreline of decades of debris and begin a youth-up dialog between lay and clergy, opening the monastery to religious concern for the Earth.

Orthodoxy and the Ecological Crisis

(A Youth Training Handbook). Sydesmos. 1996 £10 (postpaid, UK) from Syndesmos.

So That God's Creation Might Live

(Proceedings of the Inter-Orthodox Conference on Environmental Protection). Ecumenical Patriarchate. 1991; £6 (postpaid, UK), from Syndesmos.

Methodist

General Board of Church and Society, United Methodist Church

Ministry of God's Creation

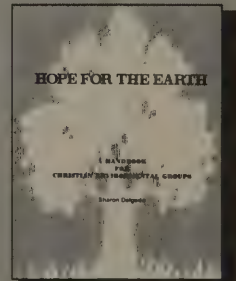
Paz Artaza-Regan, Program Director for Environmental Justice.



100 Maryland Avenue NE, Washington, DC 20002; 202/488-5649.

Hope for the Earth

(A Handbook for Christian Environmental Groups).



Sharon Delgado. 1994; 55 pp. \$6 (\$8 postpaid). The General Board of Church and Society, United Methodist Church, see above.



Rabbis in the REDWOODS

PHOTOGRAPHS BY AVERIE COHEN

IN 1986 HEADWATERS FOREST WAS acquired in a leveraged buyout by Maxxam Corporation, headed by Texas financier Charles Hurwitz. Hurwitz dramatically increased logging of ancient redwoods to pay down his takeover debt, touching off a ten-year battle to save the forest. This includes six ancient groves of old-growth coastal redwoods (approximately 6,000 acres), another 12,000 acres of old-growth stands that have been selectively logged, and a surrounding mosaic of young forest, stream zones, and cut-over lands that environmentalists have targeted for restoration. The old-growth redwoods of Headwaters provide critical habitat for the endangered marbled murrelet, coho salmon, and other species. Only 150 years ago the redwood forests of Oregon and California covered two million acres; now less than four percent remain. The Clinton administration and the State of California have agreed to purchase two of the six groves. The battle over the rest of the forest continues.

During the 1980s, a fledgling Jewish community spread its roots in Humboldt County. At High Holy Days in 1996, the three local Jewish leaders joined forces to appeal to Mr. Hurwitz, a well regarded member of his Jewish community in Houston, Texas, to make *teshuva shelymah* (full turning) and dedicate himself to the preservation of the ancient forest. Their attempts to reach him at a *neshama* level, through prayer and ethical appeals, led to their being dubbed the "Redwood Rabbis."

Through the internet, they contacted Rabbi Arthur Waskow, director of the Shalom Center (p. 28), dedicated to *tikkun olam* (mending the Earth). He joined local Jews in creating a Tu B'Shvat seder (the New Year for the Trees in the Jewish Calendar) in an old-growth redwood park near Headwaters Forest. The seder ended with 90 participants walking on to Maxxam land—the company and police had been informed ahead of time—and planting seedlings. The story is told in the interview between Richard Sheinin and Rabbi Arthur Waskow, excerpted from *EarthLight* (see review, p. 46). We thank Naomi Steinberg for her advice and information.

Richard Sheinin: So what was it like to have this ritual meal in the middle of the forest?

Arthur Waskow: Totally extraordinary.



Five hundred years ago, the Kabbalists, the mystics, created this amazing ceremonial meal . . . that's built totally around fruits, nuts, and wine. Which means that to eat it you don't have to kill any living creature, even a vegetable. Fruits and nuts

are given in profusion by trees, far more than they need for the next generation. And so it doesn't require the death of anything.

So this meal is really the meal of the Garden of Eden, the meal of peace between human beings and the Earth.

RS: You've got 250 people sitting at tables under the redwoods?

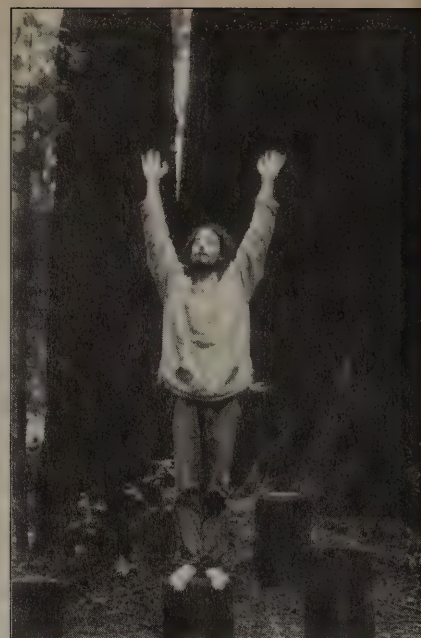
AW: Yes. But first, ahead of time, we also learned about the forest . . . how it's intertwined the species, the owls and the salmon and how they all intertwine with the redwood trees. And then somebody had talked to us about nonviolence and civil disobedience. . . .

OK, so then we went to one of the redwood groves, where there are these trees that are 200 feet tall. . . . Then the Seder itself has four different courses, built around four different cups of wine. One white, one white with a drop of red, one red with a little white, and then one all red. And there's a whole sense that these

Above: Student rabbi Naomi Steinberg greets a group of about 250 Jews at the Tu B'Shvat seder in the redwoods.

Left: Rabbi Arthur Waskow leads part of the group onto Pacific Lumber land to plant redwood saplings.

Left: Rabbi Margaret Holub and friend share memories of meaningful trees. Center: Two seder participants observe the ceremony. Right: A private moment of meditation and communion with the redwoods.



four courses are about the four different worlds that the Kabbalists talked about. The world of spirit or being; the world of knowing; the world of feeling; and the world of doing. And the universe is made up of God's unfolding into those four worlds of reality.

So the four courses of the Seder are built around those four worlds. And you eat different kinds of nuts and fruit for the different worlds. And you sing; there are dances. This whole practice—it's only about 500 years old, which in Jewish terms is pretty new. So it's very open and fluid for people to shape in each generation.

RS: This whole practice of what?

AW: Of the seder! Even Tu B'Shvat itself. The 15th day of the month of Shevat is the new year of trees—it's when the "fiscal year" begins for tithing the fruits of trees. Because the rabbis said that was when the juice, the sap, began to rise again in the trees in midwinter. So it just stayed like that for 1500 years . . . until a bunch of mystics settled in northern Israel about 500 years ago. And they took this day and said, "This is not just the day of ordinary trees, but of the tree," meaning the Tree of Life, which by that time the mystics understood as the unfolding of God.

The second thing they said was, "What is tithing about? Tithing is about abundance coming only if you share it. And God's abundance, the whole flow of all the abundance of the world, only keeps coming if we understand how to share it with the poor. So we're going to take this day and do a whole series of things that evoke sharing."

Then a century ago, the Zionist movement said, "Look, we actually need to begin planting trees and reconnecting with the Earth. It's not enough to have a Seder and have prayers. We actually have to do the task of connecting with the Earth." But that was with the Earth of the land of Israel. And then twenty-five years ago, American Jews began to say, "Look, all the trees of the planet are in danger and the Earth is in danger." So Tu B'Shvat has now become a kind of Jewish Earth Day.

RS: The redwood rabbis sent out a press release that refers to Hurwitz as being in violation of "the deepest precepts of Jewish ethics."

AW: There is a passage in the Torah in Deuteronomy which says, even if you're at war against the city, you can't destroy the fruit trees of the city, or near the city. Even if you're at war! The rabbis then said, "Look, if that's true, then you can't possibly destroy trees casually, for no good reason, when you're at peace." And then they broadened it to the protection of all nature.

This became a whole principle of rabbinic Judaism, that you had to protect the Earth. I've read the Maxxam Corp.'s annual reports, and they say it's good business to use wood from old redwoods, the ancient redwoods, the ones that are 500 or 1,000 years old. Why? Because they don't have knots in them. And so you can sell their wood for paneling to wealthy people for much higher prices than you can for, you know, thirty-year-old trees. For the sake of the higher profit involved, in being able to sell this ancient wood,

they have been willing to destroy what many of us view as sacred places.

These trees were around when the rabbis created Tu B'Shvat in the first place . . . But Hurwitz is clearly more responsive to approaches built around the Torah than he is, as far as we can tell, to anything else.

RS: What has he said?

AW: Well, he said, "I don't agree." But he keeps answering letters, which he hasn't done with a lot of the secular environmental groups.

At the end of the Seder . . . about ninety people out of the 250 went to the edge of the Pacific Lumber Co.-Maxxam property where they're doing logging. There we walked onto the property in order to plant new redwood seedlings in an area that's been denuded. And the redwood rabbis had written Hurwitz, saying we intended to plant trees and we would like you to affirm that it's OK. And he wrote back saying, "No, there's another place you can plant trees." To which the redwood rabbis said, "Thank you very much." It turned out it was a tree farm, which was not the point.

So we arrive. And in fact there's a car with the company's own police, and we walk onto the land and we do the planting and they don't in fact call the cops. And we ended up dancing and singing on a piece of the Pacific Lumber Co.-Maxxam land, which, as the locals said, previously had been a place where people had been handcuffed and beaten by the cops and what have you. But at this time, something different happened. We had an amazing, miraculous moment. ⊕





Compiled with the help of Mary Spoerer

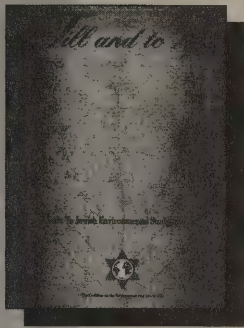
ואולם שאל נא
בהמות ותורך
ועוף השמים ויגד לך
או שיח לארץ ותורך
ויספרו לך דגי הים
— איוב י"ב: ז-ח

You need only ask
the beasts and they will teach you,
the birds of the sky they will tell you,
or speak with the earth it will teach you,
the fish of the sea will tell you stories
—Job 12:7-8

To Till and to Tend A Guide to Jewish Environmental Study and Action

Annette Lawrence, Project Coordinator.
\$10 (\$13 postpaid). The Coalition on the
Environment and Jewish Life, see review.

The Jewish community is presented here with a three-part challenge to accept environmental activism as a practical and a spiritual obligation: (1) scientific fact sheets, with what-you-can-do sidebars; (2) essays on Jewish environmental teachings; (3) nineteen hands-on programs and activities for every age group. Rabbi Daniel Swartz's "Jews, Jewish Texts, and Nature: A Brief History" had me wanting to jump up and shout, "Hear this, Hurwitz!"
—Mary Spoerer



written at roughly the same time, express general concerns about the preservation of species and the sacredness of planting trees, the Mishnah and Gemarra set definite limits on the use of any one species and regulate in detail the planting of trees in urban areas. The Talmudic sages translated the general principle of [do not destroy] into a series of specific prohibitions against wasteful actions. Similarly, they developed extensive regulations on the disposal of hazardous waste, and they curtailed industries that

might cause air pollution.

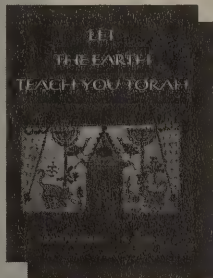
“ Rabbi Yohanan ben Zakkai . . . used to say: if you have a sapling in your hand, and someone should say to you that the Messiah has come, stay and complete the planting, and then go to greet the Messiah. (*Avot de Rabbi Nathan*, 31b.)

“ The particular and compelling gift of [the] sages is that they made their concerns concrete, translated ethical principles into codes of action. While *Genesis Rabbah* and *Leviticus Rabbah*,

Let the Earth Teach You Torah

Ellen Bernstein and Dan Fink. 1992; 184 pp.
\$22.50 postpaid. Shomrei Adamah, Church
Road & Greenwood Avenue, Wyncote, PA
19095, 215/887-3106.

The first curriculum developed on Judaism and ecology, this book offers a rich array of educational programs—including text study, experiential exercises, hands-on projects, and creative arts—all rooted in Jewish sources. Written primarily for use with teenagers, this educational guide is most useful for Jewish educators and youth directors. —COEJL



Judaism and Ecology

Hadassah/Shomrei Adamah. 1993;
138 pp. \$11. Hadassah, 50 West 58th
Street, New York, NY 10019-2590;
212/303-8132, fax 212/303-4525.

A comprehensive introduction to Jewish ecological thought through the ages, including theology, *halahak*, ethics, folklore, and Zionist poetry. Developed as a study guide for Jewish women's groups, this book offers dozens of interesting passages from Jewish sources and questions to help an individual or group explore their meaning and relevance. Highly accessible for adults, *Judaism and Ecology* is useful both for interested leaders and educators looking for source material. —COEJL

STUDY QUESTIONS

1. What kind of creatures do people tend to view as superfluous, or worse, evil? Why do we see them in this light?

2. In the story, God teaches King

David that the spider and the wasps are both essential in the scheme of life. Yet the story suggests that their purpose is to serve humanity. Do you agree that much of the creation exists for our benefit? Why or why not? How do you explain the role of spiders, wasps, and the like?

3. God rebukes David for belittling the creation. Are we guilty of the same transgression? Is disrespect for God's creatures equivalent to disrespect for God?

4. If no part of nature is superfluous, why have there always been extinctions? Is it moral to swat a mosquito? Destroy a wasp's nest? —JUDAISM AND ECOLOGY

The Coalition on the Environment and Jewish Life

Mark Jacobs, Director.
443 Park Avenue South, 11th floor, New
York, NY 10016-7322; 212/684-6950 ext.
201, fax 212/686-1353, coejl@aol.com,
www.jtsa.edu/org/coejl/index.html.



The Coalition comprises twenty-six national Jewish institutions seeking to make Jewish environmentalism “a rooted part of the Jewish and public affairs agenda.” Programs include education and action, readings and study materials corresponding to Jewish holidays and lifecycle celebrations, guides to simple living and adopting endangered habitats and species. COEJL's Environmental Advocacy Network provides periodic updates and alerts on vital legislation before the US Congress.

A RAINFOREST ROLEPLAY

This lesson provides an opportunity to apply the Jewish environmental principles we have learned to a real-life situation. . . .

Your Role: You are an American Jew with a Ph.D. in agronomy (farm and crop management). You are currently employed by a multi-national corporation that provides equipment and advice to farmers and governments in the Third World. You are torn on the issue. On the one hand, you are concerned about the need for land and food to support the expanding Brazilian population. On the other hand, you know that any land created by clearing the rainforest will only sustain crops for four or five years before it erodes or turns into a “dust bowl.” You are unsure whether to take a long-term or short-term approach.

Texts: You may use any texts from the quote sheet. Be sure you can defend your choices . . . [and] look at the other quotations, since those who disagree with you will be using them to argue against you.

—LET THE EARTH TEACH YOU TORAH

CAMP ISABELLA FRIEDMAN

The majority of immigrant Jews in America settled in East coast cities. Cut off from both the biblical desert and farming, their experience of countryside became weekends in the Catskills outside the New York City area. Camp Isabella Friedman and Yitziah Jewish Wilderness Journeys has become the teacher and guide for urban Jewish renewal and return to Creation. Set on a 500-acre parcel in the Berkshires, along the Housatonic, Michal Fox Smart heads a suite of programs: the Teva Learning Center for teens and adults, four-day spiritual nature retreats, as well as the outward bound Wilderness Journeys, with hiking, rock climbing, canoeing, and nature study. Camp Friedman is interdenominational. Orthodox, conservative, reform, and reconstructionist Jews are all encouraged to come and talk over Jewish teachings on nature and creation. The camp has begun *tikkun*, mending the Earth, with small acts like trying to control poison ivy, the ants in visitors' rooms, pesty gnats, and invasive wetland plants, without use of pesticides.

Camp Isabella Friedman 116 Johnson Road, Falls Village, CT 06031, 860/824-5991.



AVERIE COHEN

YELLOW PAGES

Jewish Council for Public Affairs

Dr. Lawrence Rubin, Executive Vice Chair.
443 Park Avenue South,
11th floor, New York, NY
10016; 212/684-6950.

JCPA develops environmental advocacy programs for thirteen national Jewish agencies and 122 community relations councils.

Shomrei Adamah/Keepers of the Earth

Laurie Hollin, 50 West 17th Street, 7th floor, New York, NY 10011; 212/807-6376, fax 212/924-5112, shomadam@aol.com, http://members.aol.com/shomadam/.

Year round, Shomrei Adamah works with congregations, schools, camps, youth groups, and other Jewish organizations across North America to provide speakers, workshops, wilderness trips, and other educational opportunities. They manage a schedule of hikes and outings that are open to the general public. These Keepers also publish *Let the Earth Teach You Torah* (see review p.27).

Jewish Theological Seminary

Rabbi Steven Shaw, Director, Dept. of Community Education, 3080 Broadway, New York, NY 10027; 212/678-8996.

This leading US Jewish seminary is integrating environmental issues into Jewish curricula. They produced a video, *Visions of Eden*, to share the lessons.

The Shalom Center

Rabbi Arthur Waskow, Director, 7318 Germantown Avenue, Philadelphia, PA 19119-1790, 215/247-9700.

Tikkun olam, mending the earth, healing human society, is the Jewish tradition uniting this network. When it was founded in 1983, the Shalom Center primarily addressed holocaust issues. Today its major concerns include global warming, resource destruction, and applying Jewish communal

ethics to corporation responsibility. (See "Rabbis of the Redwoods," p.25).

The Religious Action Center of Reform Judaism

Rabbi David Saperstein, 2027 Massachusetts Avenue, NW, Washington, DC 20036, 202/387-2800.

The legislative advocacy arm of the Reform movement, RAC advises the Synagogue Council of America on legislative and judicial issues. It organizes presentations on environmental concerns at meetings of different bodies of the Reform movement and is assisting the Jewish Theological Seminary in planning an environmental rabbinic institute.

Israel Union for Environmental Defense

317 HaYarkon Street, Tel Aviv 63504, Israel; 03/546-8099.

Society for the Protection of Nature in Israel

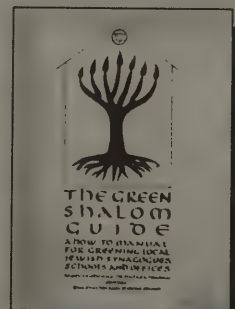
David Cohen, Executive Director, American Society for the Protection of Nature in Israel, 25 W. 45th Street, suite 1409, New York, NY 10036; 212/398-6750.

The Green Shalom Guide

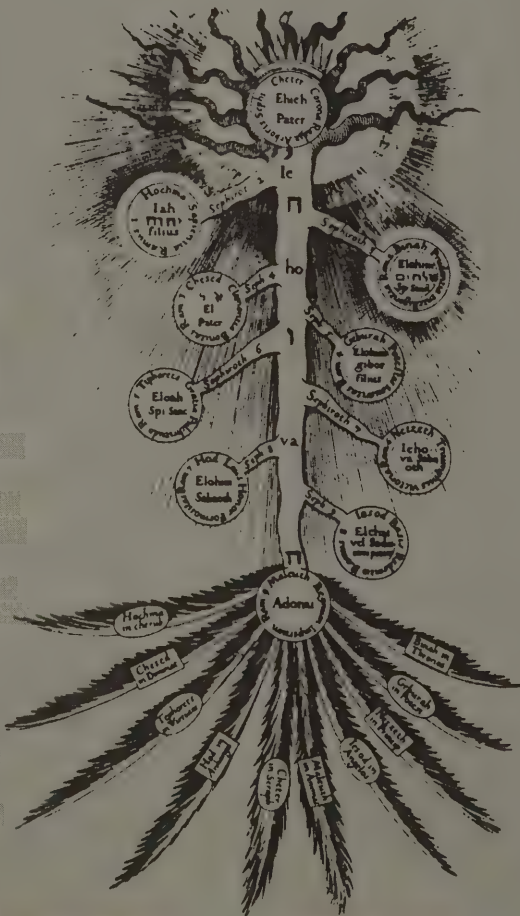
(A How-to Manual for Greening Local Jewish Synagogues, Schools and Offices). Naomi Friedman & De Fischler Herman, Eds. 1995; 162 pp. \$10 (\$14 postpaid) Washington Area Shomrei Adamah, 706 Erie Avenue, Takoma Park, MD 20912; 301/587-2248, fax 301/587-7535.

At home you recycle, use non-toxic dish soap, eat organic food, have a low-flush toilet, have native plants instead of a lawn; but your office, school, and place of worship are awash in throw-away plastics and

generally wasteful and polluting practices? Here is the guide to turning all that around. While the stated goal of the manual is



to turn "Jewish environmental values into action," your building does not need to be Jewish to benefit from the wealth of practical actions outlined, including case studies and lists of resources. —Mary Spoerer





Native American

The Sacred Ways of Knowledge, Sources of life



Peggy V. Beck, Anna Lee Walters & Nia Francisco. 1992; 368 pp. \$19.95 (\$23.70 postpaid), Navajo Community College Press, Tsaile, AZ 96556, 520/724-3311.

This book was prepared for use by young Native Americans, and largely put together by Native Americans. It's a spiritual field guide to North America. —Stewart Brand

Now twenty years in print, **The Sacred** instructs recent arrivals on ways to think about the sacred; North American ritual drama and prayer; traditional educational legacies based on oral story telling; boundaries by season, place, or origin; the world of spirits and shamanic practices; the world out of balance; sacred fools and clowns; wandering in sacred/secular limbo zones and the dislocation of conquest. **The Sacred** gives guidance with many native voices and anthropological descriptions. Inspiring, it makes no attempt to convince or convert or glamorize. This is how it was and is for peoples who have dwelled here for 10,000 to 20,000 years or more. —PW

Most Native Americans share the following six concepts:

1. A belief in or knowledge of unseen powers, or what some people call the Great Mystery.
2. Knowledge that all things in the universe are dependent on each other.
3. Personal worship reinforces the bond between the individual, the community, and the great powers. Worship is personal commitment to the sources of life.



4. Sacred traditions and persons knowledgeable in sacred traditions are responsible for teaching *morals* and *ethics*.

5. Most communities have trained practitioners who have been given names such as medicine men, priests, shamans, caciques, and other names.

These individuals also have titles given to them by *The People* which differ from tribe to tribe. These individuals are responsible for specialized, perhaps secret knowledge. They help pass knowledge and sacred practices from generation to generation, storing what they know in their memories.

6. A belief that humor is a necessary part of the sacred. And a belief that human beings are often weak—we are not gods—and our weakness leads us to do foolish things; therefore clowns and similar figures are needed to show us how we act and why.

Just about any American Indian group, working to help its people, does human and enviro healing in a seamless fabric. A few entry points:

Indigenous Environmental Network

PO Box 485, Bemidji, MN 56619, 218/751-4967, fax 218/751-0561, ien@igc.apc.org, <http://www.alphacdc.com/>. IEN is the grassroots alliance of indigenous peoples founded to protect the sacredness of Mother Earth from contamination and exploitation by strengthening traditional teachings. They convene annual Protect Mother Earth Conferences, and have broad activist concerns with specialty on toxics and nuclear waste.

Dream Change Coalition
PO Box 31357, Palm Beach Gardens, FL 33420-1357, 561/622-6064. www.dreamchange.org/dreamchange. Created by shamans from various cultures, the **Dream Change Coalition** has three primary goals: (1) inspire earth-honoring changes in con-



"The world is as you dream it. Stop destroying nature. Stop the nightmare. Come, learn to dream in beauty."

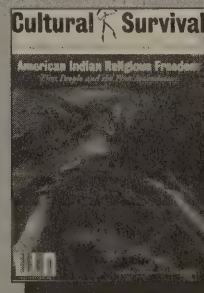
—SHAUR
TRIBAL ELDER,
DREAM CHANGE
COALITION.

sciousness; (2) conserve forests, especially Central and South American cloud and humid rain forest; (3) apply indigenous wisdom in ways to foster environmental and social balance. An institutional shapeshifter, DCC inspires corporations to clean up pollution, reshape policies, and partner constructively with native communities.

tribes working in consort. Advocates in Washington.

Cultural Survival

Winter, 1996; Volume 19, Issue 4 ("American Indian Religious Freedom"). Out of print. Crucial reading with many vignettes on First Amendment protection of religious freedom, Native American sacred and conquered landscapes. CS (617/441-5400, <http://www.cs.org>) is the best general source for indigenous concerns.



God Is Red

(A Native View of Religion). Vine Deloria, Jr. 1994; 313 pp. \$16.95, Fulcrum Publishing. The best political-religious primer and history to the Native America/Anglo-European dialog and conflict.

Association of American Indian Affairs

212/689-8720. For protection of sacred lands of exceptional beauty and power.

Native American Rights Fund

(American Indian Religious Freedom Coalition) 303/447-8760. Works to change Federal policy by revising and strengthening cultural preservation.

National Congress on American Indians

202/466-7767. Founded in 1944, the oldest and largest group of American Indian

YELLOW PAGES

SACRED SALT LAKE

Zuni Salt Lake, a volcanic feature some fifty miles south of Zuni, is a critically important religious place not only to Zuni, but also to the Hopi, Acoma, Laguna, Apache, and Ramah Navajo tribes. Over the centuries, Zuni has also provided access to the Lake by other tribes for religious purposes. The sacred significance of the Lake derives from religious beliefs that the salt is a life-sustaining gift from Salt Woman for use by the people, and, consequently, appropriate rituals and offerings must be made when the salt is collected. The Lake, returned to the Zuni in 1978, is within a detached 618-acre parcel of the Zuni Reservation about fifty miles south of Zuni. For Zuni it is vital that the Lake not be altered in any way, but the proposed Salt River Project (SRP) Fence Lake coal mine is within twelve miles of Salt Lake, and a proposed rail transportation corridor traverses within three miles of Salt Lake. While SRP contends that the mine will not affect Salt Lake, the Tribe is not completely convinced.



The Heart of Genuine Sadness

*Astronomers, politicians, and federal employees desecrate
the holiest mountain of the San Carlos Apache*

**Peter
Warshall**

In the early 1980s, the University of Arizona sought a special permit to construct seventeen telescopes on the Pinaleno Mountains. The Pinalenos are sometimes known for their highest peak, Mt. Graham; sometimes for the site of the present contested forest, Emerald Peak. The proposal ran head-on into concerns about the ecological value of the high elevations of this "sky island ecosystem," a mountain range isolated from others by desert in a manner similar to oceanic islands isolated by salt water. The project upset the San Carlos Apache medicine practitioners who emerged for the first time since internment to defend the sacred peaks and prevent further desecration. The Vatican and Max Planck (Germany) telescopes have been built. A third telescope site has been cleared and awaits full funding. The "Heart of Genuine Sadness" is a small piece of the much larger story.

IN A GROVE OF ELDER DOUGLAS FIRS, at about 8,500 feet, the ga'an dancers of the San Carlos Apache performed the songs and purifications that will help protect their people from illness and danger and consecrate the boundaries of Apache homeland. No dancer nor medicine person among them will ascend the next 1,500 feet. The peaks have been desecrated. Starting in 1990 and continuing

today, the University of Arizona, the Vatican, and Germany's Max Planck Institute clearcut and bulldozed Emerald Peak for astronomical observatories. The wounded peaks—for the Apaches consider the mountains alive and filled with powers greater than the human imagination—can no longer serve as the medium to carry the prayers of the ga'an to heaven. The prayers have been drained of power and meaning. Just as light pollutes the sky for astronomers, the violence, barefaced cement, and steel structures in the destroyed forest have polluted the ceremonial sites.

Instead of the ga'an, Gary Holy Bull, a Sioux medicine man, agreed to try to perform a healing ceremony for the Apache on Emerald Peak. About fifteen of us filled out Coronado National Forest Service forms. In assigned vehicles, followed by a County sheriff and rangers, we drove to the well-secured astrophysical area, elevation: 10,228 feet. The excavated pit for the Vatican telescope, the cement walls of the German submillimeter telescope, and various pre-fab steel buildings sunk and sprouted among the ruts and patches of dirty snow. We were gathered in the exact center of the clearcut.

The pony-tailed forest ranger lectured us:

"It's illegal and insensitive to bother or feed federally endangered Mt. Graham red squirrels. It will lower their chances of survival. We know that sounds funny. You are standing in the center of a clearcut of 1,000 old-growth spruce and fir which naturally supply seeds and shelter to the squirrels. But the Forest Service has performed many studies and the lost trees will have no significant impact."

We ushered ourselves beyond the orange plastic tape and into the snow. I was lost. The bear trail that I had followed to inventory squirrels as a University biologist had been bulldozed. The topography felt foreign. I flashed: so many Indians had felt this bodily dislocation. Elders glided in slow motion in the thin air over fragile snow crust. Coldness crept between my Patagonia and my skin. Chills of history, not weather. We stopped near a familiar granitic outcrop. Gary Holy Bull arranged the group with an opening to the west. Singing, he built the tiny ceremonial Sioux teepee of twigs, lighting the kindling. The smoke rose, hypnotic time-curls. Jerry Flute carried the pipe, offered the sage, the smoke of sweetness. Each of us inhaled and spread smoke with our hands over our chest and around the head. The anger and pain, the hardened mindset honed to resist power players, the endless tiresome energy spent reining in greed, the insanity and confusion of the world began to ebb away. A simple vivid heart of sadness emerged, a heart that these warriors-for-holy-places, each in their own way, had strong-boxed for survival.

The sadness emerged first in Henrietta Mann, a brilliant Cheyenne professor and activist. Shaky, she sat on the snow on my jacket, softly keening. The first tear dropped from a Navajo mother's chin to her moccasin and stained the hide; the next slid off and caused a tiny puff of steam as it met the snow. I can only guess at each person's thoughts/visions—dead grandmothers, starvation winters, relatives fucked up by alcohol, brothers in the Armed Services. Here in this now-consecrated place, these spiritual warriors could find sanctuary, relax their guard, and let be the world as it is. Sobs, losses from cruelties. From a palpable recognition of human frailties—of greed, ego, ignorance—in a place both conducive and blessed, a sense of the sacred emerged.

Stable and still, amid soft song and judicious smoke, the mountain's presence intensified, brightened detail. Nothing out of the ordinary—a glitter on an iced branch, the smoke's grayness entangling the pink of snow algae—teased the mind's eye. Each detail reversed the chaos, persuading by its doubtless beauty, a gift believ-

able, created by and magnanimously given, here on Emerald Peak, on the planet. The mountain had evoked memories and histories, now it evoked its own stories. As the Apaches say: the mountain stalked us with stories. Without Will imposing percepts or concepts, the mountain re-placed our attentions, our spirit. The hearts of sadness moved themselves to a trusting holy ground of beauty.

As we left, Ola-Cassadore Davis—the sister of a great medicine man and great-grand-daughter of Chief Cassadore, an Apache leader who had tried to forge peace—turned to John Ratje, the field-coordinator for the Mt. Graham astrophysical project. Her voice was high: "Why this mountain? Why have you done this?" The question, in all its dimensions, boggles the mind.

The Long View

Galileo, of course, found evidence that separated the Catholic establishment's image of the moral cosmos from its image of the physical solar system. 350 years later the Pope apologized for Galileo's house arrest. Simultaneously, the Vatican financed the construction of its 1.8m optical/infrared telescope on Emerald Peak—subverting, by a violent act against a mountain and its forest, the moral/physical cosmos of the Apache. The Vatican Observatory originated in the late 1800s, in part to avoid the embarrassment caused by Galileo-like findings. It needed Emerald peak because the Vatican's own observatory in Rome had become unusable from smog and light pollution. Rather than purify Rome's environment, the Vatican joined with the University of Arizona to build on someone else's cleaner home.

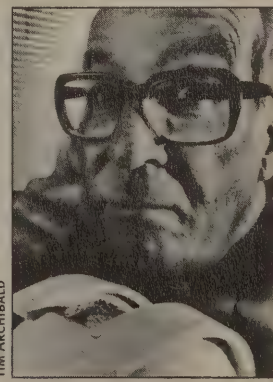
In the early 1600s, when Galileo built his first telescopes, he sold them to the City-State of Venice for military purposes. Venice desired telescopes for their strategic defense initiative—spying enemy warships an hour to two earlier. The heart of the Vatican telescope built for Emerald Peak is a US Air Force mirror. When the Strategic Defense Initiative ("Star Wars") was popular, the mirror was one tool in a grand scheme to help focus laser beam cannons. If needed, the Vatican scope could still detect and track enemy satellites. The stated present purpose for the "Pope's scope" is to help find extraterrestrials. As the Vatican's leading astronomer and representative in Arizona, Father George Coyne, says: "The Church would be obliged to address the question of whether extraterrestrials might be brought within the fold and baptized. . . . One would need to put some questions to him [sic, the alien, of

Fr. George Coyne, head Vatican astronomer.

Ola-Cassadore Davis, San Carlos leader of the Apache Survival Coalition.



ROBIN SILVER



TIM ARCHIBALD

whatever sex or form], such as: 'Have you ever experienced something similar to Adam and Eve, in other words, original sin? Do you people also know a Jesus who has redeemed you?'"

This telescope is neither at the cutting edge of astronomy nor does it require the image clarity attributes found exclusively on Emerald Peak. According to Vatican astronomers, the telescope will perform well on many other peaks, but the University offered the best deal. The mirror is underpowered to survey for extraterrestrial life. Its efficacy rests on the weird idea that there are multiple civilizations with giant power stations or million-mile-wide bubbles that trap energy for massive industrial use, somewhere out there. The heat images from these mega-power bubbles, according to infrared mirror astro-boosters, can be most efficiently spotted by the infrared telescope. The scope does not work in radio or submillimeter wavelengths that might receive broadcasts from ETs.

The Apaches wonder just how far the Vatican will go to save allegedly impure, extraterrestrial souls. As at the time of first contact, are Apaches still to be treated as extraterrestrials?

The Authority of Knowledge

In 1987 in Phoenix, Pope John Paul II received an eagle feather for the Vatican collection. "I encourage you," he said, "as native people belonging to different tribes and nations in the East, South, West, and North, to preserve and keep alive your cultures, your languages, the values and customs which have served you well in the past and provide a solid foundation for the future." Five years later, Father Coyne: "Nature and the Earth are just there, blah! And there will be a time when they are not there. . . . It is precisely the failure to make the distinctions I mention above [between Nature, Earth, cultures, human beings] that has created a

kind of environmentalism and religiosity to which I cannot subscribe and which must be suppressed with all the force that we can muster." Under heavy pressure, Coyne later backed off—eliminating the statement from his missive.

Keep in mind that the whole astro-project never would have occurred if it had been a proposal for a ski resort or hotel. The project has been able to get this far by implying that it operated in a manner superior to steamrolling corporate powers or federal agencies; by using its "authority" and image as a university to blunt or undercut the public's concerns; by plugging the overriding importance of their quest (astronomical science, spin-off technology, and the mysteries of the universe); by dredging up allegedly countervailing "facts" and rebuttals from pseudo-independent expert biologists or historians as well as unscientific opinion polls; and by dismissing the opposition as if it were all an angry mob. The University of Arizona's action has been a classic case of how not to deal with a concerned and frustrated public. The University replicated the style of Three Mile Island, Disney's theme park in Virginia, or Exxon's *Valdez* administrators by never admitting they could be wrong, denying there's a real problem, dismissing all dissenting comment as if it were the most extreme, and confusing themselves into believing that political power is wisdom.

Dr. Keith Basso, the leading anthropologist on the Western Apache and greatly respected by them, asked: "Would the University of Arizona and its affiliated institutions know more about the heavens or would they rather know they have affirmed the religious integrity of a people who have worshipped for centuries at a sacred place beneath them? What will it be? Better science or human justice?"

What the University underestimated was the moral power catalyzed by a synergy of Apache and environmentalist world views. Their common moral ground is simple: desert dwellers fall in love with the wetness of the Pinalenos. They adore this mountain range, which receives more rain, snow, and cloud cover than any other Southwestern series of peaks. They hold dear the nine perennial streams and high elevation springs, unique features among the Southwestern desert ranges. Apaches and most non-astro scientists feel the mountain range nurtures all kinds of special life, power, and wisdom. Its creatures populate Apache moral and historical stories as well as scientific journals. Biologists, in particular, have found that the living species (many endemic or Pleistocene relicts) have inspired them to advocate protection of the upper



The Pinalenos have the largest black bear population in the Southwest.

THE MOST SACRED MOUNTAIN

Mt. Graham is the chief, the most important sacred mountain...You have tried to exterminate us, and much of who we were and what we had is gone . . . I can tell you the true stories of other medicine men who were slaughtered even as they were drumming our sacred songs and prayers. Building the telescopes on Mt. Graham is like ripping off the arms of the singers. But we thought those times were over...The construction would be very detrimental because our prayers would not travel their road to God...If you take Mt. Graham from us, you will take our culture. You have killed many of us, you killed my grandfather. You have tried to change us, you forced me to go to your schools. But still I treat you with respect. I do not go to your church and hold my services. Why do you come and try to take my church away and treat the mountain as if it was about money instead of respect? —FRANKLIN STANLEY, SAN CARLOS, GA'AN LEADER, 1992

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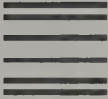
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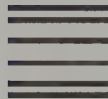
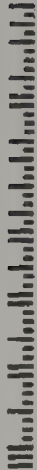
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elevation habitats. In six weeks of field work, biologists “found” eighteen unreported or newly-appreciated rarities. With differing vocabularies, but similar gestalts, both the Apaches and enviros acknowledged their respect for the mountain’s intact foodweb, a web that still includes two most powerful mammals (the largest bear and mountain lion populations south of the Colorado plateau).

On the other hand, the astronomers are irked by the rain and clouds. They yearn for clear skies, low humidity, and a nearby water source to reduce costs. They chose the Pinalenos for its flattish ridge (more observatory sites), not its tectonic history. The observatory site is a convenient platform, close to their offices in Tucson. (Despite its elevation—a feature Apaches, enviros, and astros mutually admire—the shape of the ridge and forest cover create a turbulence that reduces image clarity compared to other nearby mountains.) The presence of Mexican spotted owls, northern goshawks, flightless beetles, Mt. Graham red squirrels, and even the Apache trout have been costly astronomical headaches.

Father George Coyne, better known in Tucson for his frequent ski trips and, when living at the Jesuit communal house, his reluctance to wash dishes, has attempted to portray Apaches who oppose the telescopes as Pagans, duped by Svengali-like, neo-Pagan enviros. The University and the Fathers have been enormously successful in slighting the authority of Apache medicine people, especially the validity of their “claims” to the Pinaleno’s holy grounds. Coyne often exaggerates the brainwashing powers of white enviros, insisting that enviros are manipulating Apache minds and emotions for their own purposes. Anything but admit that traditional Apaches have carefully considered the ethical and religious implications of the telescope project and, with great deliberation and courage, dedicated themselves to their own conclusions. One conclusion is that a coalition with various human rights and conservation groups would be more effective than opposing the telescope project alone.

This attitude that “Apaches-are-passively-



SANDRA RAMBLER

Ga'an dancers at an Apache girls puberty ceremony.

manipulated-by-crafty-and-clever-white-guys” has been more egregiously promoted by Father Charles Polzer, the Curator of Ethnology at the Arizona State Museum. In a hopefully rare moment of paranoia and unscholarly outburst, he claimed that opposition to the telescope complex is “part of a Jewish conspiracy.” The conspiracy “comes out of the Jewish lawyers of the ACLU to undermine and destroy the Catholic Church.”

For the record,

many Apaches are actually bi-traditionalists. Raleigh Thompson, a major spokesman against the scopes, follows both Apache and Catholic traditions. Ola-Cassadore Davis, the Apache Survival Coalition leader, is Apache/Mormon. The ACLU has never been part of this history. Specific priests, the Sisters of Maryknoll, and numerous Catholic individuals have spent considerable time trying to convince the Vatican to withdraw from the project. More than fifty astronomers petitioned to stop the project. Dr. Roger Lynd, the director of Kitt Peak, who wrote the peer-reviewed study demonstrating that Mt. Graham ranks only thirty-eighth in astro-quality among Southwestern peaks, has heavily criticized the project. All American universities, except Ohio State and Arizona, dropped out or refused to participate.

Yet, Coyne and Polzer are no fools when it comes to the intrigue of power politics. In order to obtain a Forest Service permit to the mountain peaks, the University of Arizona became the first university to legally question the sacrality of any Native American claim. Both priests submitted affidavits to Federal courts. Their affidavits contributed to the defeat of all Apache attempts to have their land use concerns reviewed by the Forest Service under the National Historic Preservation Act (NHPA) and the American Indian Religious Freedom Act (AIRFA).

The Ritual of Architecture

What happens when you cannot draw a surveyor’s line around a piece of landscape and clearly delineate the sacred from the profane, or when you claim that a piece of land is sacred but the land contains no shrine nor church nor other built

structure to validate that the “property” of the land is yours? The Mt. Graham Coalition (the largest coalition of Native American, environmentalist, human rights, and religious groups dedicated to one issue) solidified around “sacrality” from two different points of view. The enviros desired as much undisturbed old-growth habitat as possible to insure the survival of the Mt. Graham red squirrel and its spruce/fir ecosystem. The Apaches, whose ceremonies deliberately avoid any violence to the landscape, desired a peaceful space, with no built structures, in which prayers could come into a life of their own. These two lovers of life-filled “unbuilt” nature crashed into a solid wall of denial.

“Representatives of the University,” Dr. Basso wrote, “have repeatedly questioned Apache opposition to the telescope project on grounds that only a few acres atop Mt. Graham will be disturbed. Why make such a fuss, when so much of the mountain will remain intact? The best way to answer this question is by analogy. Suppose a swastika was carved so deeply into the wall or door of a local synagogue that it could not be erased. Would the presiding rabbi claim that only the door had been desecrated? No. To desecrate a part is to desecrate the whole.”

The concept that a whole mountain ridge might be sacred was too radical. A member of the Clinton administration told me that the inability of the Apache to exactly define where their holy grounds ended (and, thereby, permit the rest of the peaks to sprout observatories) persuaded the administration to favor astro-physical development. “We are not convinced,” said Father Coyne, “. . . that Mt. Graham possesses a sacred character which precludes responsible and legitimate use of the land. There is to the best of our knowledge no religious or cultural significance to the specific observatory site.”

Apache ceremonies do not leave traces or shrines, except perhaps a small fire area and scattered pollen. Even over centuries, there is no built evidence to prove possession. The Ninth Circuit Court echoed Father Coyne. The Apache had failed to show that the sacred locale first named by the Apache also included a second locale claimed by the astronomers. The second site was not proven to be sacred, in part, because it was 1,300 feet from the first. How could both be sacred? The more extravagant Father Polzer simply presented false information in courts: “Rarely did the Apaches use these heights, and the ‘sacredness’ is about as specific as references to the sky.”

The fear that all land might be sacred runs deep in America. In twelve years, the University and the Forest Service have spent millions of dollars lobbying and in court to avoid all review of

such a contention under NHPA and AIRFA. The Forest Supervisor refused to even include a discussion of the issue under the “Cultural Impacts” subsection in the Environmental Impact Statement. The University of Arizona published an entire book on Mt. Graham with fewer than five sentences on Apache concerns. For fighting the Apaches, Dr. Peter Strittmater, the director of Arizona’s Steward Observatory, became a member and a hero of People for the West, the largest conservative property rights anti-enviro advocacy group.

Apache and enviro hearts have been further poisoned by the University astronomers’ refusal to consider, inside a legally established context, a comparison of the ecological, cultural, and astronomical values of alternative peaks. Little by little, each year from 1986 on, the angers grew and the windows for peace talks darkened. The natural environment increasingly turned into a hodge-podge of roads and firebreaks. Mythic orientations were challenged and subverted. Events multiplied. Back in the early 1980s, during the testing period for sky clarity, the Forest Service allegedly forgot to search the highest peak for shrines. By the time a stray piece of turquoise was unearthed in a small rivulet, a Mimbres (a disappeared people from about 800 CE) shrine site had been bulldozed for the astro-testing apparatus. Soon after, a renegade astronomer bounced his all-terrain vehicle up a trail (passed a “No ATV” sign) and illegally cut a spruce adjacent to another shrine in order to better align his instruments with a star. Small events but many, dozens, kept eating at the heart.



Federally endangered Mt. Graham red squirrel.

Speed, Power and the Sacred

Wolfgang Sachs, a world expert on technology, conservation, and development, has asked: How does speed impact ethics? Sometimes, the interaction of speed, the sacred, and power is obvious. In 1994, for instance, the University and the Forest Service sent a letter to the Apaches while the Tribal Council was away at a conference, telling them that they would cut the forest three days later. The Apaches returned to find the telescope site cut. “Desecrate first, then talk right-or-wrong” tilts the power play, limiting choices, forcing the enviro/Apache opposition toward more extreme measures like non-violent actions, monkey-wrenching, or property destruction. “Sorry,” said the Forest Service, “we did not exactly follow the ninety-day notice period, but it is not legally binding anyway.” Forest recovery takes 380 years.

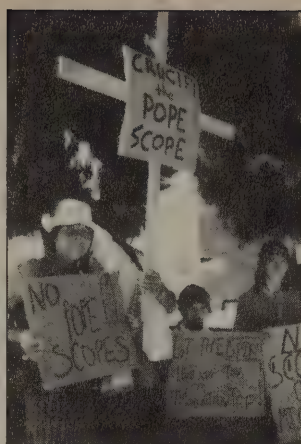
Sometimes, control of timing is more subtle. Essentially in cultural hiding since the internment camps, the traditional Apaches took their time to speak in public about their desire to keep the peaks free of human artifact and disturbance. Various medicine people had to talk together and convince themselves to reveal basically private religious knowledge. Both the Tribe and traditionalists took their time before entering legal fray. Apache time is not time-aggressive. The result: the courts twice cited “laches” arguments by the University. The judges wrote that the Apaches had waited too long. Claims must be made with a speed “reasonable” to American courts, even if foreign to Apache culture.

Perhaps the most spectacular strategy of speed occurred in 1988. The University spent \$1 million to attach a rider to the Arizona-Idaho Conservation Act. The rider eliminated the first three telescopes from all laws, environmental or cultural. The lobbying effort caught the environmental and human rights communities by surprise, blitzed through both houses with no committee hearings, passed Congress with no mention of the Apaches, and established the first exemption for a project on federal lands since World War II.

Manufacturing an Authentic Double

The century-long subversion of the Apache sense of what it means to be human in a meaningful world—an attack aimed straight at the value of sacredness—attempted, again and again, to peel ethics and theology off the landscape. Ethics and theology were assumed to be Universal, not an embedded land-based practice. During the 1880s, forced internment with other bands of Apache disrupted links between San Carlos Apache lands and their world view. Internment camp inter-marriages and household relocations began to blur the integrity of each band’s traditional sacred geography. In distant boarding schools, forced to speak English, Apache kids lost contact with elders and missed opportunities to participate in the lengthy apprenticeships required for song sequences and ceremonies. Franklin Stanley, the ga’an leader, says that twenty of twenty-eight San Carlos ceremonies are completely lost. As property fell into Anglo-European and government hands, Apache opportunities to consecrate and re-consecrate specific peaks have been incrementally denied.

But the real crown of successful conquest is the manufacture of denial among the conquered people themselves. The astronomical consortium support-



BROWN TAYLOR

ed Apaches (e.g., non-traditional, non-religious, from mixed marriage with other bands, opportunistic) who would say publicly that the peaks were not sacred. The University and the local Chamber of Commerce, for instance, supported Buck Kitcheyan, a former tribal chairman who later served time for embezzling funds. As tribal chairman, he wrote a glowing letter on the sacredness of Mt. Graham. During his trial, he reversed himself. Other members

of the Kitcheyan family then received funds to visit the Vatican. They were photographed with the Pope as the “real” Apaches who did not mind the leveling of the peaks. Tribal Chairman Harrison Talgo ran for office defending the sacredness of Mt. Graham, then lost his re-election. Disappointed, he accepted a University offer to become a crew foreman at the telescope site. The University had another Apache who proclaimed that “sacredness” was passé, an obsolete fossil of pre-modern Apaches.

In quiet moments, some traditionalists will say that these individual astronomers and Apaches cannot, ultimately, desecrate the mountain. They primarily desecrate themselves. Hundreds, if not thousands of years can come and go, but sacred areas stalk humans, and the grandchildren will return to these ruined holy grounds to rejoin and rejuvenate them.

Clinton's Sacred Cow

In 1996, it appeared that the Apaches and environs finally had power. The University goofed up its astro-data and tried to switch the location of its biggest and only “cutting edge” telescope. This time the Mt. Graham Coalition prepared for the University’s second attempt to gain Congressional exemption from all federal laws. We met with the Office of Management of Budget (which reconciles House and Senate bills), the Council of Environmental Quality, and Leon Panetta (advisor to Clinton). Mt. Graham was now one of sixteen riders on the Appropriations Bill. After the meeting, aides told us we had been effective. Since we were only asking for proper studies, we were reasonable.

Leon Panetta’s major 1996 job was to get Clinton re-elected. Clinton needed California, Florida, and Arizona, which have substantial numbers of Catholic/Hispanic voters, enough to tilt the election in these states. The Congressman from the University of Arizona’s district, Democrat Ed Pastor, was also an Hispanic Catholic and was Panetta’s top choice to represent the President in Hispanic communities.

Pastor had promised the ambitious University president, Manuel Pacheco, also an Hispanic Catholic, that he would see that the telescope project achieved immunization from all procedural requirements. Panetta dealt his cards. Pastor became head of the Democratic Hispanic caucus and praised the Clinton administration for twenty minutes on the platform at the Democratic Convention. Panetta insured that the Mt. Graham rider was not challenged in committee by keeping the major pro-Apache congressman Sidney Yates (Democrat, Illinois) out of the negotiations.

Clinton got his election and every significant rider was removed from Congressional bills except Mt. Graham. Damage-control time: Panetta, with the tone of an exhausted compromiser, claimed it was Republicans who insisted on keeping the Mt. Graham rider, thus insuring Democrat "purity" among enviros and human rights advocates.

In the modern American context, power operates within two systems: the game of political electioneering and the game of specific issues. They have been largely isolated from each other. The Apaches and sacredness became a minor card in the bigger game of winning public office. The Apache see these priorities as a plunge into chaos. Dr. Basso again: "As the mountain is wounded, Apache people are wounded as well. For as they watch the mountain desecrated by those who know not, and apparently care not, what they do, there is no alternative but to prepare for the chaos that some day may follow. Indeed, by means of a series of traditional ceremonies conducted at intervals during the last two years, certain members of the tribe have done exactly this."

Nowhere else in the world stands another mountain like the mountain you are trying to disturb. On this mountain is a great life-giving force. You have no knowledge of the place you are about to destroy.

—FRANKLIN STANLEY

No End Game

The final cards have not been dealt. The University needs more permits to achieve its dream astro-physical complex. The Mt. Graham Coalition has fostered one of the most effective networks to fight the globalist nature of this very specific local project, a network transferable to other human rights and environment issues. A trust has been built between some Native Americans and the environmental movement, a trust badly needed to repair damage caused by Wannabe whites who

adopted Indian practices solely for personal self-realization rather than a wider sense of community. Considering that the astronomers and federal agencies use taxpayer and alumni funds to prop up their PR, lobbying, and legal defenses, and that they have outspent the Coalition by at least ten to one, the results have been impressive.

The Clinton and Bush administrators, the University, the German and Italian astronomers, and the Vatican must live with their shame. And the sadness, an indelible mark on Native American hearts, has begun to scar those more recent immigrants who wished to inhabit this continent with respect. With these scars rise the first notions of how to heal both the historic legacy of genocide and the land itself. It is a knowledge combining experience and divinity, a knowledge unavailable inside the built structures of academic or religious power. Over the next century, should we escape the chaos envisioned by Apache medicine practitioners, a uniquely American sense of holiness and place may finally overwhelm the corruption and hypocrisy of present conquistadorial process. ⊕

Clearcut site of large binocular telescope.





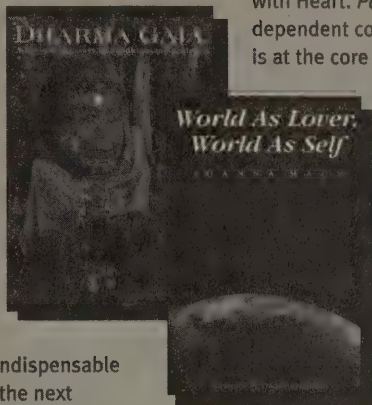
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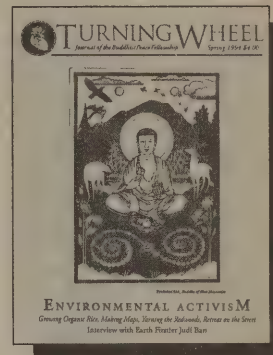
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BASE is BPF's program to nurture spiritually-based com-munities through study, training, and dia-logue. Environmental projects range from sea turtle conservation to anti-nuclear advocacy to urban gardening. Preparatory training teaches how not to burn out or despair, focusing on empowerment, compassion, and wisdom in tense situations.



“ The Western Buddhist might be asking what is Right Livelihood? after all! What is Right Lifestyle? What is the great endeavor that fulfills our Bodhisattva Vows—not just in the monastery but in daily life? Turning back to our sources, we find the Bodhisattva Kuan-yin offering answers. By her very name, Kuan-yin “hears the sounds of the world,” the sounds of suffering, and the sounds of joy as well. She hears the announcements of birds and children, of thunder and ocean, and is formed by them. In one of her representations she has a thousand arms, and each hand holds an instrument of work: a hammer, a trowel, a pen, a cooking utensil, a vajra. . . . She is the archetype of Right Livelihood: one who uses the tools of the workaday world to nurture all beings and turn the Wheel of Dharma. —ROBERT AITKEN

“ A man in the U.S.S.R. goes to the river to fish. He throws his cigarette into the water and the river explodes. True story. None of us can do everything alone. Focus on what you come into direct contact with: what you buy, what you eat, and what you throw away. . . . Give what you can in time and money where you feel it will be most effective, without attachment to results. Write to whomever you can, in government and industry; tell them how you feel. Be kind. Live your life for the well being of the planet and all the creatures on it.
—CHRISTOPHER REED

“ In my mind I still hear the local Sarvodaya workers: Development is not imitating the West. Development is not high-cost industrial complexes, chemical fertilizers, and mammoth hydro-electric dams. It is not selling your soul for unnecessary consumer items or schemes to get rich quick. Development is waking up—waking up to our true wealth and true potential as persons and as a society. That is what the Buddha did under the bodhi tree and that is what we can do—wake up. —WORLD AS LOVER

Zen Mountain Monastery

PO Box 197TR, Mt. Tremper, NY 12457; 914/688-7993.

The heart of green Zen Buddhism. Abbot John Daido Loori bases the monastery's seed practice on the great Zen master Dogen Zenji's "Mountains and Rivers" Sutra. Their Zen Environmental Center supports watershed and wet-land protection with other Catskill Mountain groups (see p. 39).

Mountain Record is the best Buddhist/land-loving journal, with precise and useful dharma discourse by the Abbot on a koan or passages.

Manzanita Village

PO Box 67, Warner Springs, CA 92086; 760/782-9223.

Buddhist meditation with

heavy emphasis on deep ecology, environmental awareness, and nonviolence. Training for adults and young people. Also in Santa Monica.

International Network of Engaged Buddhists

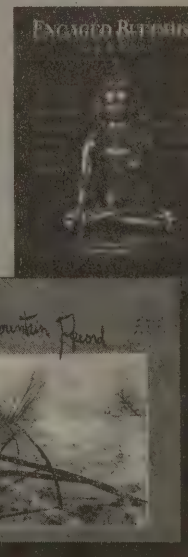
INEB Secretariat, PO Box 19, Mahadthai Post Office, Bangkok, 10206, Thailand. Tel/fax: 662-433-7169 ineb@ipcd.tu.ac.th, www.igc.apc.org/bpf/ineb.html.

Growing out of a confer-ence organized in 1989 by Thai activist Sulak Sivaraksa, INEB includes local and regional working groups in thirty-three countries work-ing locally on issues includ-ing the environment, alterna-tive development, women's issues and human rights. US contact group is Buddhist Peace Fellowship (see above).

Engaged Buddhist Reader

(Ten Years of Engaged Buddhist Publishing). Arnold Kottler, Editor. 1996; 262 pp. \$18, Parallax Press, PO Box 7355, Berkeley, CA 94707.

Working in Buddhist Areas; Not Necessarily Buddhist: International Society for Ecology and Culture (Ladakh) PO Box 9475, Berkeley, CA 94709; Tibetan Plateau Project 415/788-3666, ext. 227; International Snow Leopard Trust 206/632-2421.





Earth

A Conservation District in the Universe

Ed Lazar, Humanitas International Human Rights Committee: Your Holiness, it is my great pleasure today to introduce David Brower to you. I regret that you have not yet been able to meet the President of the United States, but today you are meeting the person many of us consider the president of the environmental movement in our country. David Brower put the environmental issue on the agenda of the United States and the world. He was the first executive director of the Sierra Club and the founder of Friends of the Earth, an environmental conservation group which is now in forty-two countries. He has been chair of the international conferences on the Fate and Hope of the Earth and currently the chair of Earth Island Institute. It has been said of him that he is the "archbishop of the church of the wilderness."

David R. Brower: Thank you very much. You have placed a heavy burden

on my shoulders. If I carry it out at my advanced age—I'll be eighty next year—it will be because of people like Justin Lowe [Director of Earth Island's Tibetan Plateau Project] who is helping me prepare things. He has brought two gifts. My story, *For Earth's Sake*, and this Credo [see p. 39]. It's almost Buddhist.

Dalai Lama: Very close.

I am very much impressed and very much appreciate your



JUSTIN LOWE

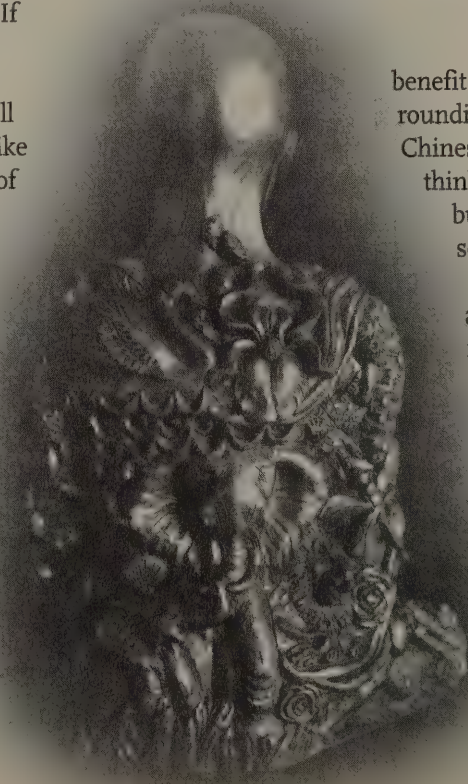
Meeting of Tenzin Gyatso, His Holiness the 14th Dalai Lama of Tibet, and David R. Brower, Founder and Chairman, Earth Island Institute

very strong concern about Tibet. The major rivers of India, China, and Vietnam, originally come from Tibet. So now you see, water resources in these areas, particularly in the most populated nations, come from Tibet. Secondly, once the ecological balance is damaged or disturbed in Tibet, then it will take more time to recover because of its high altitude, as well as the dryness. Thirdly, if Tibetan climate conditions are changed, it will effect the monsoon patterns in all the Himalayan region, including China. So therefore, the concern for making some proper plan for the Tibetan environment is going to

benefit not only Tibet, but all surrounding regions. At present, our Chinese brothers and sisters, I think they're exploiting blindly, but that finally they will face some problems.

The lack of knowledge and lack of farsightedness is shared by many communists. One characteristic of many communist movements is that they are rather hasty and once they are into the swing of something, they take a great leap, a kind of emotion develops and brings with it all sorts of things without proper plan. So that

Buddha sculptures by L. Kenji Strong. To contact her, see p. 101.



The transcript of this meeting has not been previously published. We thank Justin Lowe of the Tibetan Plateau Project (see p. 37) for donating this interview; TPP works in Nepal and Tibet on environmental issues. We are grateful to the following Buddhist organizations for contributions that allowed publication: International Committee of Lawyers for Tibet, Tibetan Rights Committee, Arizona Friends of Tibet, Peggy Hitchcock, Tibet Education Network, the Bay Area Friends of Tibet, the International Tibet Independence Movement, Christina Feng, the US Tibet Committee, Inc., and other donations that arrived too late to acknowledge.

.....

THERE IS BUT ONE OCEAN THOUGH ITS COVES HAVE MANY NAMES; A SINGLE SEA OF ATMOSPHERE; WITH NO COVES AT ALL; THE MIRACLE OF SOIL, ALIVE AND GIVING LIFE, LYING THIN ON THE ONLY EARTH; FOR WHICH THERE IS NO SPARE. ✻ WE SEEK A RENEWED STIRRING OF LOVE FOR THE EARTH. WE PLEAD THAT WHAT WE ARE CAPABLE OF DOING TO IT IS OFTEN WHAT WE OUGHT NOT TO DO. WE URGE THAT ALL PEOPLE NOW DETERMINE THAT AN UNTRAMMELED WILDERNESS SHALL REMAIN HERE TO TESTIFY THAT THIS GENERATION HAD LOVE FOR THE NEXT. ✻ WE WOULD CELEBRATE A NEW RENAISSANCE. THE OLD ONE FOUND A WAY TO EXPLOIT. THE NEW ONE HAS DISCOVERED THE EARTH'S LIMITS. KNOWING THEM, WE MAY LEARN ANEW WHAT COMPASSION AND BEAUTY ARE, AND PAUSE TO LISTEN TO THE EARTH'S MUSIC. WE MAY SEE THAT PROGRESS IS NOT THE ACCELERATING SPEED WITH WHICH WE MULTIPLY AND SUBDUCE THE EARTH NOR THE GROWING NUMBER OF THINGS WE POSSESS AND CLING TO. ✻ IT IS A WAY ALONG WHICH TO SEARCH FOR TRUTH, TO FIND SERENITY AND LOVE AND REVERENCE FOR LIFE, TO BE PART OF AN ENDURING HARMONY, TRYING HARD NOT TO SING OUT OF TUNE. ✻

.....

David Brower's Credo

has taken place during the last forty years in Tibet in many places. So there's real danger.

DRB: If today you were able to start environmental restoration in Tibet, where would you begin? What ecosystem would you begin restoring, how would you go about environmental restoration in Tibet?

Dalai Lama: I don't know. There are two big hydroelectric schemes in Tibet. According to the Chinese, there is one big dam project in the Kham area. There is a hydroelectric project using the water of Yamdrok Lake. So these two things, it seems, will have very serious consequences. Then there is deforestation in southeastern and eastern Tibet, and also certain portions in the northeast, where large areas of forest are now almost thoroughly, in many parts, completely destroyed. Although the Chinese in recent years have done some replanting, it is not properly done, so the damage is much greater.

Then, as I mentioned earlier, usually the Chinese rush in without a proper plan. One case I know is in southern Tibet, quite near Lhasa, I think one day's journey away by car. The Chinese have put in very many restrictions at the site. Local people are not allowed to the mine site, but everyday, sixty or seventy trucks, fully loaded, come from that

area. So what is the real nature of that project? Nobody knows. The mining must be taking place according to a hasty plan without any proper consideration to its side effects. For instance, when it rains they may not have proper protection over the open mining pits.

Then also there is another problem in the vast pasturelands in the northern part of Tibet. Previously the area was just like a no-man's land. There were many wild animals, thousands and thousands of wild animals, as well as domestic animals grazing. Now in many of these areas, particularly the lower elevation areas where the Chinese can survive or settle, many, many of these areas are now transformed to farmland. That creates a lot of problems for wildlife, as well for domestic animals. So these are all very serious. So you see I don't know where I should start.

DRB: The thing to do I guess is to organize so that we have teams to work on all of these. We can't wait on any of them.

Dalai Lama: We have objective proof that many of these environmentally hazardous projects are happening inside Tibet, but there are others which are still quite speculative, like whether the actual dumping of nuclear waste is taking place or not. Although there are some indications, we do not

ZEN MOUNTAIN MONASTERY

On Mt. Tremper in the Catskills, bounded on two sides by the Esopus and Beaverkill Rivers and on the other two by the Catskill Forest Preserve, the Zen Mountain Monastery feels its geomantic power. It set aside eighty percent of its 250-acre spread to remain wild and undeveloped for as long as it has the land. In 1992, the New York State Department of Environmental Conservation (DEC) demanded access through the Monastery wetlands to monitor their own upstream activities. They wanted the right to clearcut, dredge, and park heavy equipment in the wetland areas. The Monastery and volunteers formed the "Green Dragon Council," sued DEC for violating their own laws, and settled out of court, allowing access only for a limited number of benign activities.



DHARMA COMMUNICATIONS, INC.

have conclusive evidence. One thing is quite clear. That is, near Kokonor Lake around the southern part of that area, are some important Chinese military installations. Among them, one industry is producing nuclear weapons, that is quite certain, because about ten years ago one high Tibetan official reached one factory where nuclear weapons are produced. Afterwards, that official suffered a sudden death. There is grounds for suspicion. Then in the no man's land, at the juncture where Mongolia, East Turkestan and Tibet meet, the Lop Nor facility usually is where the Chinese nuclear testing is carried out. In some parts of Tibet, according to some Tibetans, some animals are having deformed ani-

**We need to treat the
Earth as a conservation
district in the universe,
as a sort of Earth
National Park.**

mal births. In certain parts of the no-man's land, the Chinese have put in very many restrictions. Even Chinese truck drivers cannot enter from certain gates. Many people are now having some concern for Tibet, for the environment in Tibet, and that the environment of Tibet is very much linked with neighboring states.

Therefore, it becomes not only a Tibetan subject or concern. It is therefore an issue for the entire region. I think it is worthwhile to have a team of scientists sent to Tibet, along with Chinese scientists, and in various areas carry out investigations as to whether mining works or hydroelectric projects are really properly planned or not. If they are properly planned, all right. These investigations would not take an antagonistic stance towards the Chinese and not simply disapprove of what they are doing, but rather help them to see what negative consequences could ensue from their work. Now the Chinese government themselves at least on the surface are showing some kind of concern about the environment.

DRB: Very little.

Dalai Lama: Even so, they are obviously showing something. So you see, they themselves should be part of a team studying these projects and then carry out some research in these places.

DRB: In the Judeo-Christian tradition, we have a definition for progress: multiply, replenish the Earth, and subdue it. It is not working very well. We should multiply our concerns, and I think we should learn that replenish does not mean just "fill it," it means to restore, which is part of your peace program. And then not subdue the Earth, but subdue our greed. We're particularly interested now in restoring because, in my own philosophy, since the industrial revolution we've been tearing the Earth apart faster and faster. In my own lifetime, the population of the Earth: times three; the population of California: times twelve; and the world as a whole has used up four times more resources in my lifetime, as in all previous history.

So far, most of the organized religions are not worried about that, as the Earth is just disappearing. In the last twenty years we've made so much new desert that if it were growing food instead of being desert, it could supply the population of—forgive the expression—China. Almost all our institutions, and that includes many religions, but certainly the corporations, the governments, the universities, all think this can go on.

It seems to me that the one way to save us is to get people who disagree, from all the nations, all the colors all the ages, all the sexes, to work together to try to build back, to give nature a chance to

PHRA PACHAK, A MONK WHO ORDAINED TREES

In 1989, Phra Pachak wandered into Pakham district, in the northeast province of Buriram. Rural Thailand was in the throes of the Khor Jhor Khor project, a scheme to resettle seven million people from land designated as "reserve forest" to make way for industrial eucalyptus plantations.

Twelve villages in the area were next on the list for destruction and the people of these communities, lacking a teacher and desperate for someone to help them organize resistance, begged him to stay. He was impressed by their interest in preserving the forest and saw it as his duty to honor their request.

He asked the villagers to donate an area for a *khet Apaiyataan*, or "land of forgiveness," where tree felling and the harming of wildlife would be forbidden. He wrapped some of the largest and oldest trees with the sacred cloth of the Buddhist clergy. These "ordained" trees have not been cut to this day, because the local people working for the illegal loggers feel that this would be tantamount to killing a monk, one of the worst crimes in a Buddhist society.

Phra Pachak also began working with the headmen of twenty-five district villages on a community-based conservation program. Groups of villagers and monks patrolled an area of 5,000 acres with walkie-talkies and cameras in an effort to discourage illegal logging. Blockades were put up to hamper transportation of logs from the forest.

The Royal Forestry Department and the loggers did not take kindly to these activities: three villagers have been killed in confrontations with loggers, wells have been poisoned, and land mines set near the temple. A machine gun was fired into the temple while Phra Pachak was holding a service; miraculously nobody was killed. Phra Pachak was arrested and charged with a number of crimes, but despite the constant threat of imprisonment, he continued his work, training local youths in reforestation and conservation, and trying to generate small-scale industries such as silk weaving. His goal is to show that humans and forest can co-exist, and that the people of the villages should be given a chance to stay in the countryside, rather than joining the impoverished masses flooding into Bangkok.

Excerpted from "A Walk with the Monk Who Ordained Trees," *Shambhala Sun*, November, 1995.

restore. That can be a very challenging, exciting role for civilization as a whole.

One of the ideas that one of our young women came up with is a "Peace Forest" in Tibet, where we try to get people of various nations working together to restore the forests that have been destroyed. Noel Brown said we should go from Desert Storm to "Desert Flower." It's time to start rebuilding, trying to help nature, trying to help our nature (gestures toward self) and nature outside, rebuild. Not just to plant trees, but to grow a forest, what needs to be the understory, the animals, the whole piece, so that your idea for Tibet can come to pass—cultural, natural—to rebuild where it has been destroyed.

It's terribly important that we teach people how to restore; it's not easy. I know of one man who spent twenty years so far trying to restore a little island just south of Bermuda. He had to look at all sorts of records of what was there and try, very humbly, to bring the things back together.

Dalai Lama: Thank you. I feel the danger for the future is very clear, that it's reality.

There are many factors: lack of knowledge and lack of courage. So now the most important thing is firstly to establish clear information. If the present situation continues, what will the negative consequences be? Regarding this question I place more hope in environmental scientists, rather than religious groups. Of course religious teachings no

COMPASSION, INDIVIDUAL SALVATION, AND WILDLIFE CONSERVATION AT ODDS IN SRI LANKA

From the second century BCE onward, there are many records of Sri Lankan kings establishing botanical gardens and parks and issuing proclamations protecting wildlife. The most famous are the rock proclamations in Polonaruwa from the twelfth century CE, in which King Nissankamalla declared protection to all wildlife, including fish, within a radius of thirty-nine km of the city. The British, who took over the country in the early 1800s, are best known for their slaughter of elephants and other "big game" and for clearing huge tracts of forest to plant coffee, tea and rubber; however, they also established many of the present national parks and reserves, beginning a tradition that now prevails.

Although the formal protection of wildlife has generally resulted from governmental actions, such actions would never have had much effect if they were not readily accepted by the people. The abundance of wildlife results from deep philosophical and religious convictions. The principal, and official, religion of Sri Lanka is Buddhism, followed by seventy percent of the population. Twenty percent are Hindu, a religion sharing many beliefs and attitudes with Buddhism. The prevalent type of Buddhism is Theravada, which teaches that Nirvana can only be achieved through individual action, by living a good life and thinking right thoughts. One is not expected to achieve this state in one lifetime but only after

birth and rebirth during a series of lifetimes, not necessarily just as humans, but as all beings. These Buddhist convictions provide a strong philosophical base for living in harmony with nature, based on the interconnectedness of all forms of life, not only in the present, but in the past and future as well.

Although the closeness of humans and wildlife would suggest that Buddhism would protect wildlife resources, Theravada has one major flaw as a conservation ethic. The Theravada Buddhist is concerned mainly for the individual animal, which is to be allowed to live out its natural life, no matter how miserable its existence.

This focus on individual lives actually seems to prevent more general actions to save wildlife. A villager, for example, is unlikely to take action against a deforestation project, even if the forest is a principal nesting area of the same birds he would abhor killing. The disappearance of the birds is likely to be accepted (albeit with sadness) because the villager did not actually kill the birds himself.

Theravada Buddhism also emphasizes tolerance for the actions of others, because "salvation" is an individual matter. Thus environmentally destructive acts become easy to condone, especially when the action is filtered through multi-layered bureaucracy. The well-educated administrator who issues an order to cut a forest tract may well be aware of the effects on wildlife, but may not give it much thought either because he is not a devout Buddhist or because he will not be involved in the actual tree cutting.

Even wild elephants, whose imagery is everywhere and which are so important to Sinhalese rituals, may be shot and wounded by villagers, using small caliber guns, to protect their gardens. The elephants may then wander in agony and make unprovoked attacks on other people. Nevertheless, shooting the elephant is still regarded as an act of individual responsibility and the killing of another individual a few days later by the wounded elephant is that individual's fate, of no great consequence to the shooter. The accumulation of such attacks combined with poaching and extensive loss of habitats has reduced wild elephant populations to critically low levels in most areas.

Despite such major problems, the future of wildlife is much brighter in Sri Lanka than in most "developing" nations. The people still treat wildlife with respect, encouraging species that do not mind human presence to flourish. Agriculture, which mixes tree crops and flowering bushes with gardens and rice paddies on small plots of land, provides habitat for many forest species. If this friendly but delicate human-wildlife relationship can survive the current onslaught of Western culture and rising human population, rural Sri Lanka may eventually serve as a model for future societies elsewhere.

Excerpted from *Tigerpaper* 9 (1983), "Wildlife Conservation in Sri Lanka: A Buddhist Dilemma," by Peter Moyle and F. Ranil Senanayake. Suggested by Gary Snyder.

doubt have some potential to contribute in that direction, but I think the main thrust should come from those scientists who are involved in environmental research. From that, they can show a clear sort of picture.

DRB: We still have too much hubris and pride; too little humility. You were speaking of scientists. When I run into scientists who do not have much hubris, I say, "What do you believe most thoroughly today that you think is most likely to be laughed at in twenty-five years?" That slows them down. I think that in religions, the things we believed very sincerely centuries ago, the Buddhist world particularly, we still believe. We're not laughing at them. My law for scientists, if I'm ever in command, would be: they may not take anything apart that they cannot put back together and they may not put something together that they can't take apart. They've been doing both of those things too much. We've taken the atom apart and we don't know what to do to get it back together.

Dalai Lama: It will be important to build the sense of responsibility in each individual person. Certain problems are essentially human creations. The answer must come through humanity—the combination, collection of individual human beings. In India, as one small example, when we discuss how to handle the educational system local officials realize the unsuitability of the national curriculum to the border regions. But at the same time, they say that because it is something written in the constitution, nothing can be done. On a few occasions I asked "Who made the constitution?" Humans made it, the Indian people created their constitution. So if the Indian people find something wrong, why not try to make some changes?

So again, sometimes individual people, although they see the negative things, the long-term dangers, they lack the confidence or courage to be able to effect any change. It's very important for people like

When we talk about preservation of the environment, it is related to many other things. Ultimately, the decision must come from the human heart, so I think the key point is to have a genuine sense of universal responsibility.

—HH Dalai Lama

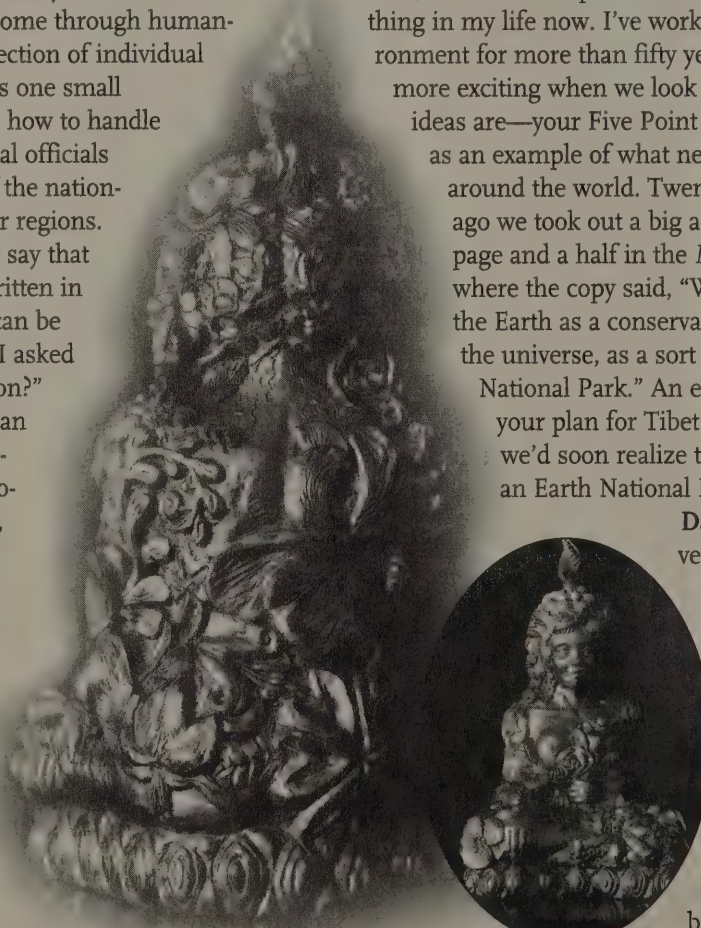
you to be able to lead and mobilize all the individual concerns and energies and guide them towards a particular goal.

DRB: In the past year I've talked to about 200,000 people in various audiences. I've asked them, how many in this audience would be willing to commit one year out of the next ten to work on the idea "It's Healing Time on Earth," and to try to heal the Earth, kind of an Earth Corps, a Peace Corps, working around the world performing environmental restoration pro-

jects. The International Green Circle we call it. Out of those 200,000, about 140,000 have put their hands up.

So the wish is there. How to organize it? We'll get some young people. They are understanding we're near the end of our rope. The religions that we practice here, except for Buddhism, don't think much about the Earth. For example, the Ten Commandments, in the Judeo-Christian theology, talk all about how we should treat each other, but they don't say a word about what we should do for the Earth. I've never seen, with anything I've done, that much response. That's the exciting thing in my life now. I've worked on the environment for more than fifty years. Now it's more exciting when we look at what your ideas are—your Five Point Peace Plan—as an example of what needs to happen around the world. Twenty-one years ago we took out a big advertisement, a page and a half in the *New York Times*, where the copy said, "We need to treat the Earth as a conservation district in the universe, as a sort of Earth National Park." An extension of your plan for Tibet would be that we'd soon realize that it could be an Earth National Park.

Dalai Lama: I am very encouraged and inspired by your tremendous knowledge about Tibet. So I very much appreciate that now I have gotten more backing. ⊕

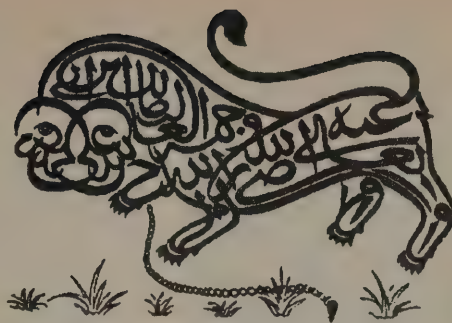




In nations like Saudi Arabia, Pakistan, Iran, Iraq, parts of Malaysia, and many nations of the Middle East, environmental policy is inseparable from the Qur'an.

Religion, government, environmental education are the same word. Ziauddin Sardar has explained: "Tawhid, Islam's eternal quest for the unity of life and purpose, spirit and matter, human beings and nature, law and ethics, faith and morality, precludes that man dominates the Earth and commits violence in any form on God's creation."

This is not to say that contemporary Muslim societies have done a better job than any other religion. Sardar: "Much



of their traditional consciousness and concerns . . . have been lost. Both colonialism and the mad rush for modernization have played their part in this oversight. But today we can detect a minor resurgence in Islamic environmental consciousness." —PW

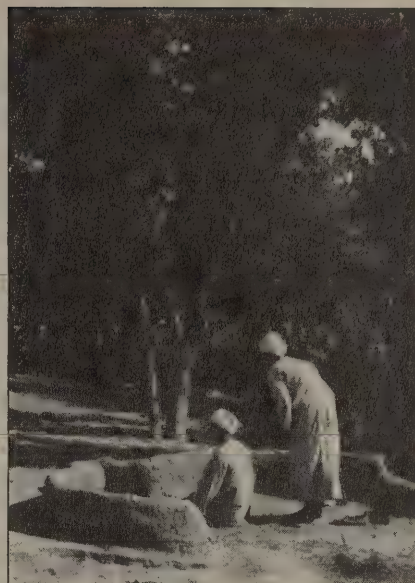
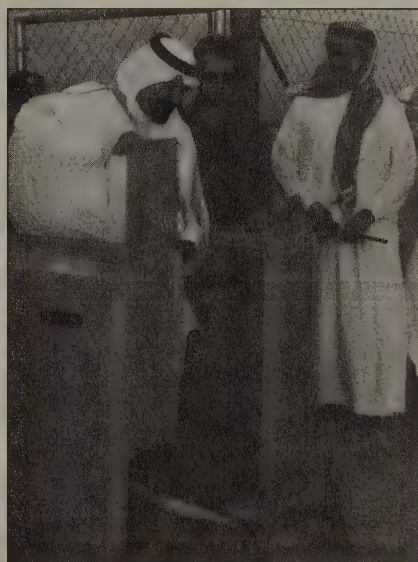
SAUDI WILDLIFE CONSERVATION

In recent decades, the plants and animals of the Kingdom of Saudi Arabia have confronted the same pressures of modernization as the people themselves. Growing numbers of automobiles and modern firearms, as well as an income that permitted increased falconry, put pressure on birds like the Houbara bustard and mammals like the Arabian oryx. The last Arabian oryx disappeared in the 1970s. In addition, increased grazing pressure reduced the forage and shelter for many birds and gazelles. Cheap gasoline allowed pastoralists to extend their grazing areas with "portable oases," tank trucks filled with water that followed or met the herds.

Aware that the natural heritage of the Kingdom is a national treasure and that Qur'anic teachings and the Shariat speak to human responsibilities to nature, the Custodian of the Two Holy Mosques, King Fahd Bin Abdul Aziz, established the National Commission for Wildlife Conservation and Development (NCWCD) in 1986 to protect endangered species and reintroduce extirpated species. Included in this plan are fifty-six terrestrial sanctuaries, thirty-three marine reserves in the Red Sea, and fourteen in the Arabian Gulf. These actions are based not on new understandings, but revived understandings. Classical Muslim civilization developed the *haram*, an inviolate zone outside towns and near water holes, where development was forbidden. They implemented *hima* in woods, forests, and "wild" zones where hunting and vegetation use were limited.

The Mahazat Al-Sayd Reserve, for instance, is the world's second largest fenced reserve. A 136-mile fence surrounds over 1,000 square miles of protected land. The Reserve was the original location for the re-introduction of the Arabian oryx from zoo populations in other parts of the world. The oryx and the bustard and other formerly extirpated or vulnerable species are now bred within the Kingdom by the Taif Research Center. The reserve also nurtures the Houbara bustard, gazelles, and the once extirpated ostrich. With fencing from livestock, the number of plant species has more than doubled since 1986.

Saudi Arabia, Fall 1994. Information Office of the Royal Embassy of Saudi Arabia, 601 New Hampshire Avenue, NW, Washington, DC 20037, 202/337-4076.



With the generous assistance of Ziauddin Sardar

Left: Muslims at prayer in sacred enclosure, Egypt.

Below left: Prince Sultan Bin Abdul Aziz releases a captive-bred gazelle at the Mahazat Al-Sayd wildlife reserve.

Many Muslims work in multicultural groups such as the **Consumers Organization of Penning (CAP)**, which is led by S.M. Idris, a very pious and religious man. **The Institute for Sustainable Development** in Islamabad (led by Tariq Benuri) is another notable group. But, because the Islamic brotherhoods and other task-oriented groups are very decentralized, it is hard to list a single group that specially uses Islam as an instrument for environmental action. The exceptions to this are, of course, Islamic nations.

"Islam and the Environment"

Ziauddin Sardar, *Encyclopedia of Non-Western Sciences*, Helaine Selin, Ed. 1997; Kluwer, Dordrecht.

The Touch of Midas

(*Knowledge, Values and Environment in Islam and the West*). Ziauddin Sardar, Ed. 1984; \$38.50, Manchester University Press. (Also 1997; Other India Press, Goa.)

An Early Crescent

(*The Future of Islamic Discourse on Thought*),

Science, and the Environment). Ziauddin Sardar. 1989; 272 pp. \$80, Cassell Academic.

Islam and Ecology

Fazlun Khalid and Joanne O'Brien, Ed. 1992. Out of print.

Religion and Order of Nature

S. Hossein Nasr, 1996; 304 pp. \$17.95, Oxford University Press.

Environmental Protection in Islam

Abou Bakr Ahmed Ba Kader. 1995; 120 pp. \$15, International Union for the Conservation of Nature/Island Press.

The Island of Animals

Denys Johnson-Davies, Trans. 1993; 96 pp. \$19.95, Interlink Publishing Group

For "disputes between animals and man" from *The Epistles of Brethren of Purity*, tenth century.

Sufis: Glisten (*The Rose Garden*) and **Budtan** (*The Fruit Garden*). Both by Sadi Shahzai. Out of print.

Conference of the Birds

Farid al Din Attar. 1984; 240 pp. \$10.95, Penguin Books.



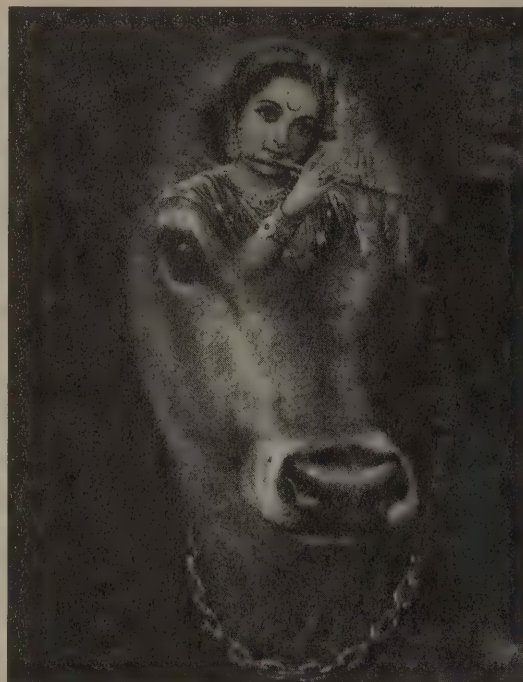
With the generous assistance of Christopher Chapple

RESTORING KRISHNA'S FORESTS

The City of Vrindavan is the heartbeat of Hinduism because of its close association with Krishna, the most environmental of all Hindu visions of God. Here Krishna was born and lived in the forest, herding cows and dancing with cowherd girls, providing inspiration for generations of Hindu poets, artists, and philosophers.

In the 1980s, Sevak Sharan watched the only remaining large tree in the neighborhood being cut. He asked the cutters to stop. He asked their guru to stop them. He asked the police. Nobody would help; the tree toppled. Unable to protect trees and animals that were part of his devotion, he went to the state and national capitals in search of support. After several years of paperwork but no action, he met Ranchor Prime, who had international links. In 1991, the Vrindavan Forest Project, funded by World Wildlife Fund Geneva, received funds to tree-plant along the *parikrama*, the seven-mile pilgrim's path that encircles Vrindavan. Hundreds of thousands of pilgrims and the local ashrams and temples became involved.

The new barriers were browsing animals, careless drivers of tractors and bullock carts, theft of tree-guards, drought, heat, and the grand larceny of monkeys. The only solution was neighborhood and village vigilance. Tree mortality dropped from ninety percent to fifty percent. Three nurseries were started in ashrams, a plant clinic is in operation, and 30,000 sacred plants have been distributed.



Meanwhile, WWF funded a Hindi curriculum based on cultural and religious traditions at Vrindavan. Nature clubs, teacher training, school tree nurseries, contests, plays, and nature art exhibitions heightened environmental interest which galvanized around the proposed bulldozing of a road through recently reforested areas. Hundreds of school children joined their teachers in a time-honored tradition of street processions, with singing and music for a specific environmental issue. The road was stopped.

The global/local links extended to Leicester, a British city with a roughly one-third Hindu population from East Africa. Combining fundraising with cultural/spiritual links, Ranchor Prime started Friends of Vrindavan.

In 1996, forty Leicester Hindus traveled to India and bicycled 500 miles from the Himalayan headwaters down the Yamuna River to Vrindavan. The attention drew additional funds from the Alliance of Religions and Conservation (ARC, see review p. 9), the state of Uttar Pradesh, and Sulah International, India's largest governmental development organization, to tackle the town's sewerage and waste disposal mess. This small-scale experiment inspired ARC and WWF to fund five sacred groves in other parts of India.

Friends of Vrindavan

10 Grafton Mews, London W1P 5LP, United Kingdom.

Book reviews excerpted with permission from Christopher Chapple's chapter in the forthcoming *Purifying the Earthly Body of God: Religion and Ecology in Hindu India*, Lance Nelson, Editor, SUNY Press.

Pancava

(*Indian Approach to Environment*) Banwari. Asha Vohra, Trans. 1992. Shri Vinayaka Publications, Delhi, India.

Perhaps the most comprehensive work of this genre to date. Banwari examines the forest culture of India as the appropriate ecological model for life in the subcontinent. The remarkable contribution of this book lies in its careful research of the importance of the tree in Indian history, and

the sense of continuity between antiquity and the modern world. —CC

Hinduism and Ecology

(*Seeds of Truth*) Ranchor Prime. 1992. Cassell, London. Available from World Wildlife Fund UK, PO Box 963 Slough SL2 3RS, UK. tel +44 (0)1753 643104.

Prime reinterprets the ten incarnations of Vishnu in an ecological vein, and suggests that Krishna provides several examples of environmental wisdom through his care for the Vrindavan forest and purification of the Yamuna River [see vignette above]. He cites modern and contemporary figures who have worked to establish the pre-British lifestyle. —CC

Environmental Crisis and Hindu Religion

O.P. Dwivedi and B.N. Tiwari. 1987. Gitanjali Publishing House, New Delhi, India.

Painstakingly quotes numerous texts from the Vedic, Dharma astra, and epic traditions that uphold nature as central to life processes in India. —CC

Ecological Readings in the Veda

Marta Vanucci. 1994. D.K. Print World, New Delhi, India.

Vanucci, a biological oceanographer, cites passages from the Rg Veda and Atharva Veda that evoke environmental themes. Vanucci particularly emphasizes the power of *agni*, "the undecivable, who spread out all worlds, keeper is he

and guard of immortality," as key to environmental understanding. —CC

Sankat Mochan Foundation

B1/45 Varnasi 22105 India; vbmishra@peg.apc.org.

Led by Dr. V.B. Mishra, a hydraulic engineer and Hindu religious leader, the foundation works with the Ganges Action Plan to clean up the holy river. See "Questions for the Ganges," WER No. 86.

The Centre for Science and Environment

41 Tughlakabad Institutional Area, New Delhi 110-062 India.

Founded in 1980 to study and disseminate information on the social economic impact of science and technology.

The Centre for Environmental Education

Nehru Foundation for Development, Thaltej Tekra, Ahmedabad 380 054 India.

Gandhi Peace Foundation

221-223 Deen Dayal Upadhyaya Marg, New Delhi 110-001 India.

Promotes coordination among NGOs concerned with energy, food and agriculture, water resources and pollution, land use, and natural resources.

Centre for Rural Development and Appropriate Technology

New Delhi.

"She is More Than Mother to Me"

Shri Sunderlal Bahuguna personifies twenty-five years of opposition to India's plans to build a 260-meter-high dam at the confluence of the Bhilangana and the Bhagirathi rivers, the major feeders of that most holy of rivers, the Ganges.

The reservoir would displace 100,000 people and flood 27,000 hectares. Gone would be the center of Garhwali culture and the spiritual refuge for followers of the Vedantic saint, Swami Ram Tirtha. The Ministry of Environment's Environmental Appraisal Committee called the risks "totally unjustified" in light of the almost total certainty of an earthquake of magnitude greater than 8.0 on the Richter scale occurring in the region during the life of the dam. Moreover, respected geologists have projected that high siltation rates may limit the reservoir's life to as little as thirty years.



INTERNATIONAL RIVERS NETWORK

March 6, 1997
 Sitting here on the bank of Bhagirathi—the main stream of Holy Ganga about 100 meters from the same site of monstrous Tehri Dam, I send my greetings to you all, the crusaders against killer large dams. . . . Though the task before us seems impossible as the dam-builders equipped with power, wealth and arms are outwardly very powerful, but they are hollow as far as the real power—the power of soul—the inner-self is concerned. That is the real strength of a crusader for truth. All—Buddha, Christ, and Gandhi—were so strong that they still reign over our hearts. They have given us the most powerful weapons of fearlessness and selflessness to fight the establishments' weapons of fear-greed. The lesson of history is that a small creative minority could change the course of history and end oppression and exploitation. The humanitarian scientists, social activists and journalists should come and compassionate literary men, artists and journalists should come on a common platform to form this creative minority. It will come with practical solutions to the problems facing Humankind, and make the silent majority vocal. We will win, if we have a band of crusaders with devotion, determination and dedication.
 A few steps below me is the Sacred River flowing for the well-being of all and a few meters away is the dreadful sound of dynamites and bulldozers. The river, when it flows in its natural course, benefits all irrespective of caste, creed, and colour, wealth or poverty; but as soon as it is dammed she loses her socialist character.
 We are all fighting for peace, for life against injustice and death. While working for our mission, though physically far, far away, we shall be meeting each other everyday in our prayers, and in our struggle for saving our dying planet.
 I request all of you to repeat with me:
YES TO LIFE
NO TO DEATH
 Ever in spirit with you,
SUNDERLAL BAHUGUNA

Still, a succession of governments have continued the project. In response, the 71-year-old Bahuguna, a revered long-time environmental activist, has undertaken three "repentance" fasts of at least forty-five days each, taking only *bael* (sacred medicinal fruit and honey). He ended a forty-five-day fast in 1992 and a forty-nine-day fast in 1995 when then-Prime Minister Narashima Rao promised independent reviews of the dam.

No reviews ensued. He fasted seventy-four days in 1996, breaking the fast when Prime Minister H.V. Deve Gowda personally brought him fruit juice and a pledge to initiate a comprehensive review. A year later, India had its third government in ten months and the project continued unabated, with no review in sight. Bahuguna began another fast.

In March, he wrote to participants of the "First International Meeting of People Affected by Dams" in Curitiba, Brazil (see box). He has shown repeatedly that he can articulate clearly the environmental, cultural, and economic issues. The letter shows deeper spiritual sources from which his motivations well. The Ganges, as he has said, "has built my personality by feeding my body and mind—so she is more than mother to me. I feel duty bound to stake my life for her survival."



INTERNATIONAL RIVERS NETWORK

Himalaya Bachao Andolan
 Ganga Himalaya Kutli, Tehri Garhwal; Uttar Pradesh, 249001, India; (+91)1376-84666, fax (+91)1376-84566.



Quaker

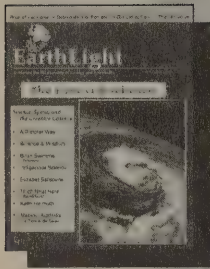
American Friends Service Committee

1501 Cherry Street, Philadelphia, PA 19102; 215/241-7000; fax 215/241-7275; www.afsc.org.

This is the Quaker organization that embraces those concerned with bringing social justice, peace, and service to people of all faiths. There are AFSC programs in 22 countries. —ET

EarthLight

Kurt Lauren de Boer, Editor. \$18/year (4 issues). Religious Society of Friends, 1588 Mercy Street, Mountain View, CA 94041; 415/960-1767, fax 415/969-8784, www.earthlight.org.



Those deft Quakers roll the oats better than most anyone; you can hardly get more specifically ecospiritual than this. Attempting to jump the nuance border from interfaith to panspiritual, this wispy quarterly wants to be everyone's friend, and appears to be succeeding. From the redwood rabbits to Annie Dillard to the American Indian Movement (AIM),

it's hard to find a category that's not represented in *EarthLight's* open-forum format. Books are reviewed and sometimes explicated by their authors, and there is a regular "Earthsaint" spread; Edward Abbey profiled as one of the Coyote Clan by Terry Tempest Williams comes to mind. —Robin Leveque

NEW MARKETS FOR FAMILY FARMERS

One of hundreds of incredible Quaker AFSC outreach efforts, the Rural Economic Alternatives Program (REAP) started serving its community in 1979. REAP is based in Stockton, California, in the northern San Joaquin Valley, an area with a service and agrarian economy, where multi-ethnic people speak 105 languages. In its early years REAP helped local small family farmers to organize a "certified farmers market" enabling growers to sell their produce directly to customers. This idea mushroomed into more than 250 such markets operating throughout California. REAP continues to assist youth and immigrant and refugee communities to empower themselves through active community building. All efforts are based on the Quaker belief in the worth of every person and in the power of love to overcome violence and injustice.

Rural Economic Alternatives Project

Raj Ramaiya, Program Director. AFSC/REAP, PO Box 1259, Stockton, CA 95201; 209/465-4265; fax 209/467-7553; reapstkn@hotmail.com.

“What's behind this moment of cosmological grace? I would call it Creator Spirit. Some would call it God. The Great Mystery. Or, the “force that through the green fuse drives the flower . . .” It's driving the story—our story, and standing in awe of it is what gives our lives meaning. How we talk about it is “theology,” I suppose. And not very dry and lifeless. . . .

Like it or not, we're the point species coming onto the new millennium. There isn't an ecosystem on the planet that isn't feeling the effect of the human. If we can make the choice to “eat the sun” in our own way, and preserve a habitable, vibrant planet for our children, we'll have pulled off one of the most creative acts in evolutionary history.

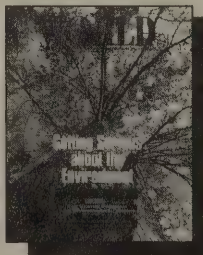
“It has come to me that we need to conduct a kind of archeological dig into the Christian worldview in order to redeem it from a variety of ecological errors. In my effort to do this “spiritual” archeology I have received particular assistance from the toads with whom we share North Hill Farm. Encountering toads always brightens my mood, and good humor sometimes opens the door on an innovative thought. . . . “Will there be any toads in heaven?”

Unitarian

Unitarian Universalist Association

25 Beacon Street, Boston, MA 02108; 617/742-2100, fax 617/367-3237, www.uua.org, info@uua.org.

Each year, through its democratic process, this association of more than 1,000 Unitarian congregations adopts resolutions consistent with its “fundamental purposes and principles.” The seventh principle in the UU statement affirms “reverence for the interdependent web of all existence.” It is this undisputed principle that serves as inspiration for progressive ecology and population resolutions, and as guide for Unitarian environmental action. *World* (Linda Beyer, Editor. \$18/year, 6



issues) is the journal of the UUA, which includes annual General Assembly business in addition to Unitarian activities, people, and history. —ET

Unitarian Universalist Veatch Program at Spirit Rock

Jane McAlevey, Director. 48 Shelter Rock Road, Manhasset, NY 11030; 516/627-6576.

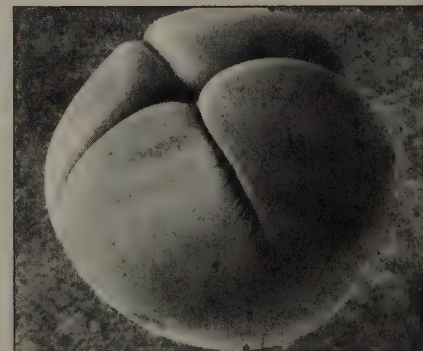
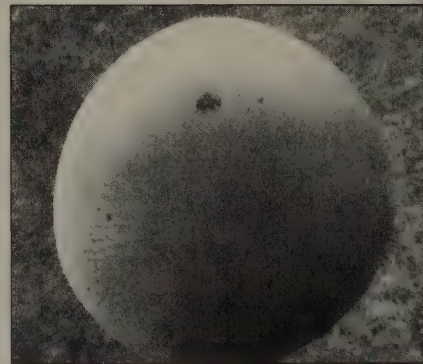
A Unitarian foundation that supports grassroots environmental justice endeavors such as the Farm Labor Organizing Committee, the Indigenous Environmental Network, and the Military Toxics Project: Veatch directs money to community-based programs that prove directly vital to the environmental movement. —ET

Creation Spirituality

The University of Creation Spirituality

Matthew Fox, Founder/Director. 2141 Broadway, Oakland, CA 94612, 510/835-4827, fax 510/835-0564, ucs@csnet.org.

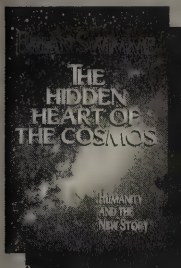
UCS defines itself as a “post denominational” religious organization, practicing a “deep ecumenism” that draws from all traditions a sense of the sacred. Rooted in the Christian mystics as well as new scientific understandings of the cosmos, UCS recognizes all living beings as expressions of the divine. Courses on bioregionalism, ecofeminism, and justice are offered in the spirit of inviting students to become co-creators. UCS has recently begun reaching out to the Oakland community through youth groups and with other organizations involved in sustainability projects. —ET



**The Hidden Heart of the Cosmos
Humanity and the New Story**

Brian Swimme. 1996; 115 pp.
\$15, Orbis Books.

Brian Swimme has a way of describing the most magnificent subject in the universe—namely, the universe—with language that is just about exalted enough to match its topic. This breathtaking book is about the birth of the universe, and how we know, and why knowing it ought to transform completely our story about ourselves and our role on earth. It's clear and exciting, and it also gets in some of the most powerful criticisms of the consumer society I have ever read. —Donella Meadows



Making room for the immensities, Einstein experienced their inrush, when suddenly the Milky Way as Great Self became this Einstein reflecting upon



his deepest nature, which is the nature of the galaxy and the cosmos too.

**Thomas Berry,
Godfather of
Creation Spirituality.
Author of
The Dream of Earth.**

Deep Ecology

Although we only move forward as a collective entity, deep ecology is not a formal religion. Arne Naess, the founder of deep ecology, has written a philosophical framework that includes cultural decision-making and embodies spirituality at the same time. He called these “platform” or “core principles.” Any religion or group which follows these is part of the Deep Ecology movement. —Harold Glasser

**The Trumpeter
Journal of Ecosophy**

Alan Drengson, Editor. \$25/year (quarterly). LightStar Press, Box 5853, Stn. B, Victoria, BC V8R 6S8 Canada.

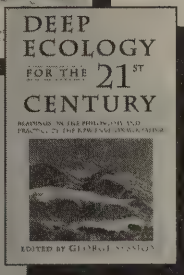
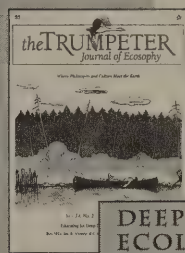
The Trumpeter sees deep ecology in a religious way, though it does not attempt to organize it into a religious institution. Everyone has a voice. Deep ecology supports that pluralism. Deep ecologists, then, can be found in many activist groups, or they can act on their own. —Harold Glasser

**Deep Ecology
for the Twenty-first
Century**

Readings on the
Philosophy and
Practice of the New
Environmentalism

George Sessions, Editor.
1995; 488 pp. \$30,
Shambhala Publications, Inc.

The most comprehensive entry intro with selections from Arne Naess and writings on ecofeminism, wilderness and the wild, conservation biology, and implications for globalism, development, and politics. Includes Dolores LaChapelle (ritual), Jack Turner (wildness), Gary Snyder, Wolfgang Sachs (development), Paul Shepherd, and many more. —PW



“What we call *wide* economic sustainability of the human enterprise on this unique planet may take a long time, but the more we *increase* unsustainability this year, and in the years to come, the longer it will take. How much is left of nature obviously depends upon what we do today and tomorrow. The appropriate message is of a simple, well-known kind: the recovery from illness will take time, and for every day that we neglect to *seriously* try to stop the illness from getting worse, the more time it will take. Policies proposed today for attempting to heal the planet are not serious. The Deep Ecology movement is concerned with what can be done *today*, but I foresee no definite victories scarcely before the twenty-second century. . . .

First there is the *peace movement* . . . which is, at present, remarkably dormant. But if military expenditures do not rapidly decrease from about 900 billion dollars per year, I expect that it will revive. Then there are the many movements which I include as part of the *social justice movement*. It includes the feminist movement and part of the social ecology movement. One might refer to the third movement by the use of the vague term *radical environmentalism*, because the use of the specific terminology of Deep Ecology will, sooner or later, elicit boredom and aggression. But a problem with the word “environmentalism” is that it smacks of the old metaphor suggesting humanity *surrounded* by something outside: the so-called environment of humans. . . .

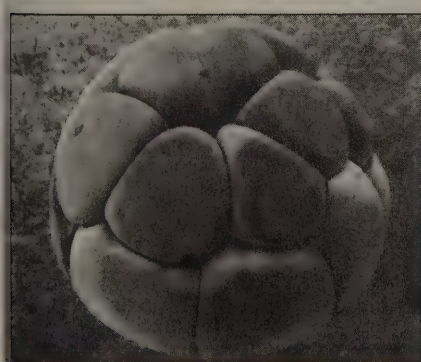
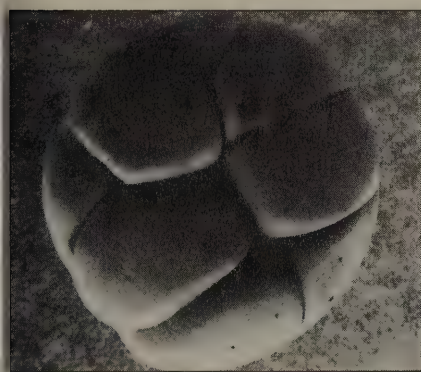
Rich people who work in the world of business, who are supporters of the Deep Ecology movement, ask in all seriousness whether Green utopian societies *must* look so dreary.

Why portray a society which seemingly needs no big entrepreneurs, only organic farmers, modest artists, and mild naturalists? A capitalist society is, in a certain sense, a rather *wild* society! We need some degree of wildness, but not exactly the capitalist sort. The usual utopian green societies

seem so sober and tame. We shall need enthusiasts of the extravagant, the luxurious, and the big. But they must not dominate.

—ARNE NAESS, DEEP ECOLOGY FOR THE 21ST CENTURY

Left:
A moment of
creation; frog
egg developing
from one to
sixteen cells.





Paganism

Robin Leveau

Pagan originally meant “country dweller,” anyone who was attached to the land. (The word “peace,” as a “binding together,” shares the same root.) Country people had rites and ceremonies in keeping with the seasons and honoring the earth upon which they depended. As Christianity spread through the cities of the Roman Empire, “country dweller” (pagan) began to equal non-Christian. Then it was expanded to mean all non-Christians, including city-dwelling Jews, Muslims, and Buddhists (just recently, a post-Catholic friend told me about having to pray as a child “for all those dead Pagan babies who wouldn’t get into heaven”). The sense of “pagan” as religious practice bound to the earth, however, was never lost.

Terry Tempest Williams points out that when then-Secretary of the Interior James Watt was asked what he feared most about the ecology movement he



ROBIN LEVEAU

replied, “I fear they are Pagans.” Williams says that he was right to be afraid. Are today’s Pagans Pan-demonic Earth ecstasies? Perhaps, depending on who’s talking. Pagans as a strong force of activist rage? I don’t think so. Not yet, anyway. They’re too busy enjoying themselves and Great Nature.

Even if practitioners do not conform to outside expectations, Neo-Pagan-Wiccan Earth-based religions exhibit the potential to be among the greatest inspirations for ecological action and social change.

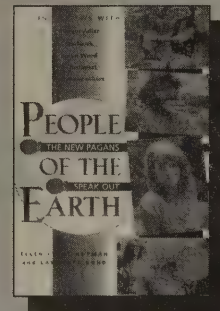
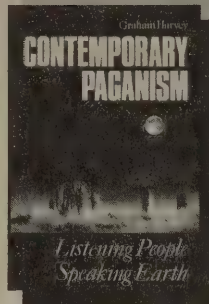
Contemporary Paganism Listening People, Speaking Earth

Graham Harvey. 1997; 250 pp. \$24.95, New York University Press.

What ought pagans do to be proper Pagans? Brit Pagan Graham Harvey will not tell, but he’ll not do it in a charming, incisive, droll way that will have you whipped up into a subdued frenzy of snickering appreciation. While it is obvious that earthy Pagan daily life naturally gravitates toward a seasonal attunement

that could beget a lifestyle of ecology in action, the book explicitly explores at length exactly how Pagans relate to various kinds of ecological activism and contemplation.

Conference on contemporary Paganism and the nature/religion interface: www.paganfed.demon.co.uk. —RL



People of the Earth The New Pagans Speak Out

Ellen Evert Hopman and Lawrence Bond. 1996; 402 pp. \$19.95. Destiny Books, One Park Street, Rochester, VT 05767.

Who are these people and what do they want? Well, they want good things, and they are Unitarians, colorful Georgians, Canadian politicians, NPR reporters, famous activists, humorists, herbalists, parents, therapists, etc.—just what you expected. Blessed Be—now you’re one, too!

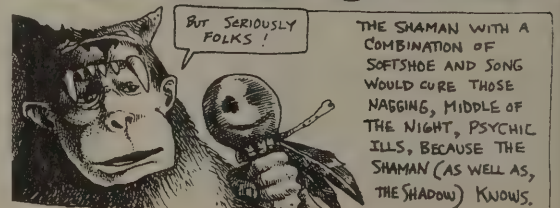
Buy this. It’s so tasty you will leave the bookstore drooling. It is today’s Pagan cabal-at-large chatting in Earth’s breakfast nook about everything you would probably ask if you could get your guts up. One thing is perfectly clear—like it or not, taking on the label of Witch, Wiccan, Pagan, or Druid brings about a necessary activism of identity and survival. Some go much further than that. —RL

“Pagan ecological protest against road-builders draws “courage and inspiration” from the practice of this somatic knowledge [of the unity of everything]. The Dongas—anti-road protesters whose experience united them into a tribe at Twyford Down, with its then-threatened, now-destroyed, ancient earthworks which gave them their name—and Dragon engage in colorful drama and celebration, not just angry opposition and eco-vandalism. They live in threatened trees, sleep on threatened ground, build relationships with the “spirit” of threatened places, often perceived as a dragon. Shamanism, combined with ritual magic, gives a “grounded strength” empowering campaigners. —CONTEMPORARY PAGANISM

“We think that you can’t divorce your spirituality from the rest of the world and that when women are being raped and discriminated against, if you are in a Goddess movement, you have to politically act to

address what’s happening to people in the real world. By the same token, if you have a forest being cut down somewhere and you are in a Nature-oriented religion, if you don’t do something about that forest, you are being hypocritical. Exactly what you do is up to yourself, but you can’t simply say that you will act on the astral and not in the world of here-and-now reality.

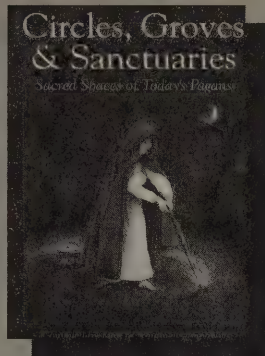
—PEOPLE OF THE EARTH



Circles, Groves, and Sanctuaries

(*Sacred Spaces of Today's Pagans*). Dan and Pauline Campanelli. 1993; 268 pp. \$12.95, Llewellyn Publications.

A sort of Pagan Better Homes and Gardens (Holier Huts and Cairns?) and do-it-yourself manual for creating your own sacred space, within your dwelling or on your grove. Besides providing ample inspiration for your own close, it offers a

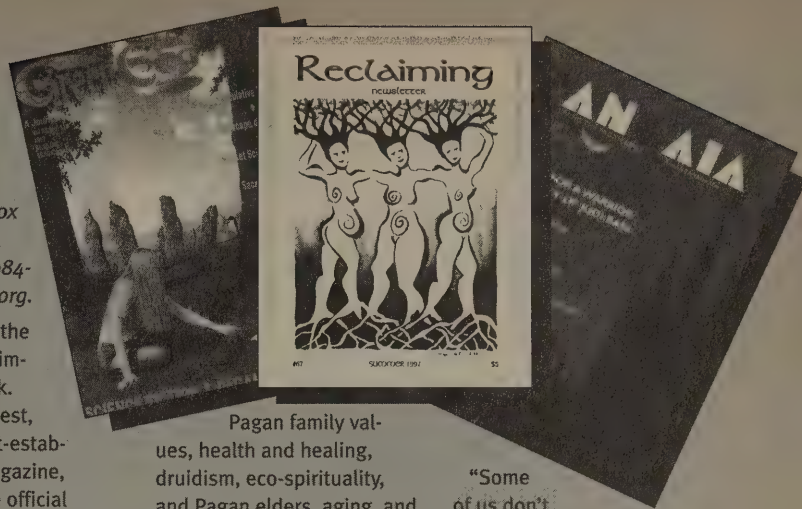


prototypical plan for what I am convinced will be the next big wave of nature conservation: become a recognized nature-based "church," buy land that needs saving, declare it to be the sacred sanctuary or grove that it is, venerate it and worship in it, and carefully share it with like or unlike species.

Green Egg

(*A Journal of the Awakening Earth*). \$6.95/issue; bimonthly, PO Box 488, Laytonville, CA 95454; 707/984-7062; www.caw.org.

When I called, the staff was out swimming in the creek. Probably the oldest, largest, and best-established Pagan magazine, **Green Egg** is the official glossy-covered journal of the Church of All Worlds, one of the more activist Pagan associations. Issues are thematic. Recent themes have included



Pagan family values, health and healing, druidism, eco-spirituality, and Pagan elders, aging, and death (how do you totter up those hills to the festival year after year?). There's always a column on Green Living, and the "nesting notes" provide a network of congregations all over the world. Outreach prison study groups are also listed.

Pangaia

(*Living the Pagan Life*). \$5.95/issue; quarterly. PO Box 641, Point Arena, CA 95468; 707/882-2052; fax 707/882-2793; info@sagewoman.com.

Pangaia is the spawn of *Green Man* and *Sage Woman*. Debuting in fall, 1997, this sturdy publication promises to be one of the most ecologically outspoken of the Pagan 'zines. The premiere issue bolts fully grown out of the cradle with a ten-page requiem for the late, great Judi Bari of Earth First!, and a rant about autoamerica and public transportation by a "revolutionary Pagan writer and deep ecologist." Nature religions worldwide, such as Voudoun, will be a regular feature.

The stated intent of this family magazine is to "mainstream" Paganism. Here Pagans can drop their Other status and come out as the normal, credit-card-using, obstacle-beset people they are and still be proud of their Earth-centered philosophy of life.

Reclaiming Newsletter

\$5/issue, irregularly quarterly. *Reclaiming: A Center for Feminist Spirituality*, PO Box 14404, San Francisco, CA 94114; www.reclaiming.org.

"Some of us don't even like some of the stuff we print," disclaims the last issue of **Reclaiming**. Strongly associated with Starhawk, the collective from which the paper springs works to "unify spirit and politics" under the rubric of Goddess (Immanent Life Force) religion and magic.

Reclaiming rituals and Starhawk's schedule are always included. The new issue has information on Big Mountain, the Headwaters fight to save the redwoods, Ward Valley radioactive waste dump protests, aid to El Salvador's people of the land, and more. Try reading her *Dreaming the Dark*, *Truth or Dare*, and *The Spiral Dance*.

Circle Network News

(*Nature Spirituality Quarterly*). \$15/year (4 issues). Circle Sanctuary, see box.

A must if you are interested in hallowed or Pagan nature conservancy and networking. Find out what crones are doing to preserve Florida's Everglades, which familiar cats are disappearing, or the website for action against local strip-mining. Also provides a full cauldron of Wiccan traditions, shamanism, Goddess spirituality, ecofeminism, animism, reviews, Pagan wares, tapes, books, herbs, jewelry, and a useful calendar. Where do these people get all that energy? —RL

CIRCLE SANCTUARY

In a unique unglaciated bioregion called the Driftless Area, Circle Sanctuary has, for twenty-five years, protected its 200 acres of Wisconsin nature preserve. It is the home of the pioneering Wiccan Shamanic Church, a legally recognized Pagan religious organization that offers a dozen or more educational and other services to its communities; Pagan, local, ecological, and global interfaith. Encountering local suspicion in the beginning, Circle has since become integrated into the human environment—to protect Circle's festivals from disruption and harassment, county judges issued temporary restraining orders, including one which established a one-mile "no-witnessing zone" around Circle Sanctuary's land.

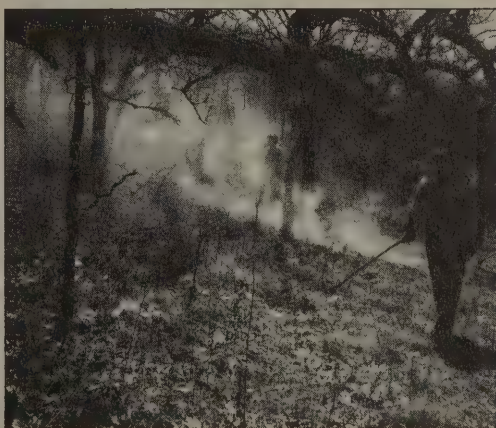
This is not a "no humans allowed" approach to nature conservancy. Humans are actively and carefully inhabiting, researching, and restoring the land. It is a spiritual endeavor—actual nature worship takes place in actual nature. They maintain a site that is "holy" in a way one can really get into, maybe even roll around in. Besides the original inhabitants, who better to take on such necessary tasks than those with that old-time nature religion?

Trained ecology scientists work with Circle to preserve the rare remnant of original prairie land on the site; there are fewer than 1200 acres of it left in all of Wisconsin. Wetlands and hardwood forest are also conserved. The Eastern bluebird, once nearly extinct in Wisconsin, has made a comeback there, and the sanctuary is habitat for more than fifty other bird species. It has served as a university ornithological study site. Previous Native American habitation sites are honored, along with sacred sites of present-day Pagan worship. You can even attend one of the many events held throughout the year. Get the *Circle Network News* and find out how.

Circle Sanctuary

Selena Fox & Dennis Carpenter, Co-Directors. POB 219, Mt. Horeb, WI 53572; 608/924-2216; www.circlesanctuary.org; circle@mhtc.net

Prairie burn at Circle Sanctuary's Remnant Prairie project.



SELENA FOX



Proto Religion

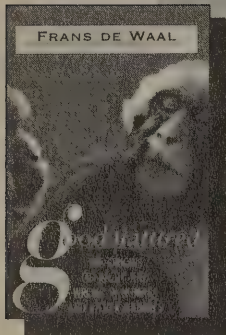
Good Natured

The Origins of Right and Wrong in Humans and Other Animals

Frans de Waal. 1996. 296 pp. \$24.95, Harvard University Press.

In the exciting new scientific disciplines of evolutionary psychology and evolutionary ethics, the tone has tended to be cynical. Phrases like "the selfish gene" lead many to the facile conclusion that all behavior is selfish. Some biologists have claimed that to be ethical, we must resist our evolved nature with all our strength. But now, Frans de Waal, who has been

called the finest primatologist of his generation, gives evidence for a profound paradox in nature: that the basic thrust of evolution—genetic self-advancement at the expense of others—has given rise to remarkable capacities for caring and sympathy. He makes a strong case for the view that the root moral sentiments we consider purely human are not only genuine, but have evolved in other primates and large-brained mammals as well. —Tyrone Cashman



“ Human morality shares with language that it is far too complex to be learned through trial and error, and far too variable to be genetically programmed. Some cultures permit the killing of newborns, whereas others debate abortion of the unborn. Some cultures disapprove of premarital sex, whereas others encourage it as part of a healthy sexual education. The gravest error of biologists speculating about the origin of morality has been to ignore this variability, and to downplay the learned character of ethical principles.

Possibly we are born, not with any specific social norms, but with a learning agenda that tells which information to imbibe and how to organize it. We could then figure out, understand, and eventually internalize the moral fabric of our native society. Because a similar learning agenda seems to regulate language acquisition, I will speak of *moral ability* as a parallel to language ability. In a sense, we are imprinted upon a particular moral system through a process that, though hundreds of times more complicated than the imprinting of birds, may be just as effective and lasting. And, as in birds, the outcome may deviate from the norm.

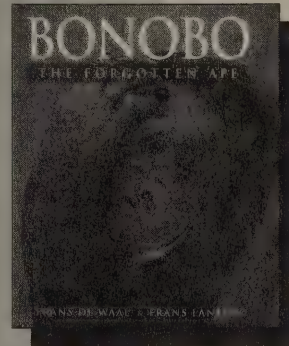
Bottom: An exchange of gestures between two bonobos before they play. Bonobos tend to gesture with their right hands, which hints at a brain specialization similar to the one underlying human language.

Bonobo

The Forgotten Ape

Frans de Waal and Frans Lanting. 1997; 210 pp. \$39.95, University of California Press.

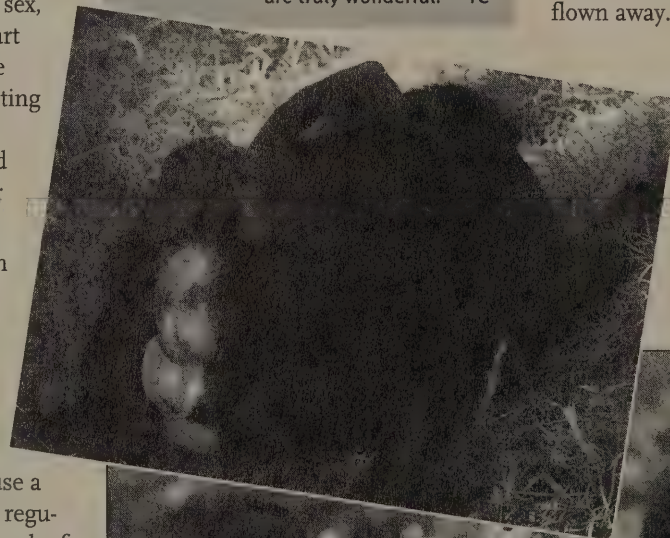
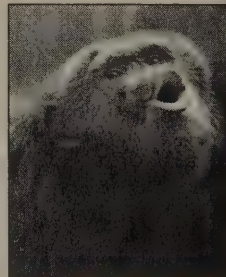
We have shared the planet with bonobos, our closest animal cousins (born with ninety-eight percent same genes) for millions of years, but this is the first book that gives the lay reader any real knowledge of them! Jane Goodall's studies of chimpanzees (also ninety-eight percent same genes) showed us that these genes we share can lead to male-dominated, power-organized societies capable of infanticide, bloody internecine fights, as well as ambush and murder of neighboring chimps. From the bonobos we learn something entirely different about our common genes—that they can lead to a female-centered, female-bonded society in which even the male rank order is largely dictated by mothers. Aggressive conflicts never escalate very far before they are transmuted and reconciled through erotic play. (Perhaps the first behavioral science confirmation of the 1960s slogan, "Make love not war.") The bonobos' extraordinary intelligence is channeled, not into tool-making, but into a heightened sensitivity to the point of view and feelings of others. Hard to believe? Check it out. The photos by Frans Lanting are truly wonderful! —TC



“ One day, Kuni [a female bonobo] captured a starling. Out of fear that she might molest the stunned bird, which appeared undamaged, the keeper urged the ape to let it go. Perhaps because of

this encouragement, Kuni took the bird outside and gently set it onto its feet, the right way up, where it stayed, looking petrified. Not satisfied, Kuni picked up the starling with one hand and climbed to the highest point of the highest tree, where she wrapped her legs around the trunk, so that she had both hands free to hold the bird. She

then carefully unfolded its wings and spread them wide open, one wing in each hand, before throwing the bird as hard she could toward the barrier of the enclosure. Unfortunately, it fell short and landed onto the bank of the moat, where Kuni guarded it for a long time against a curious juvenile. By the end of the day, the bird was gone without a trace or feather. It is assumed that, recovered from its shock, it had flown away.



Left: A unique bonobo behavior is mutual genital contact between females in a face-to-face position. The female on the bottom clings to the one on top while they rub their swellings sideways against each other. These contacts are brief but intense, serving mostly to alleviate strained relationships.



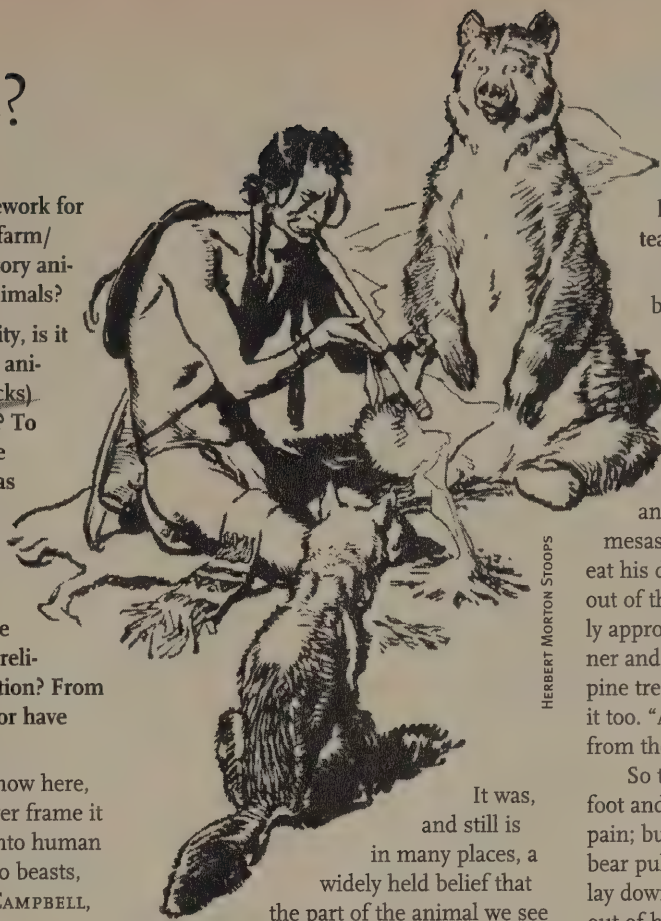
Inquiry Animated Souls?

Q What is the moral framework for “humane” treatment of farm/factory animals? Laboratory animals? Rare animals? Hunted animals?

Q To deeply love biodiversity, is it necessary to believe that animals (and plants and rocks) have souls, contain a holy spirit? To love the world deeply, should we abandon “anthropomorphism” as false perception and “see” that sometimes humans are animals (not just werewolves) or plants, and vice versa? Does respect for other creatures, come from, in part, the perception or religious imagination of re-incarnation? From the idea that we might become or have been one of them?

The spirit wanders, comes now here, now there, and occupies whatever frame it pleases. From beasts it passes into human bodies, and from our bodies into beasts, but never perishes. —JOSEPH CAMPBELL, *THE WAY OF THE ANIMAL POWERS*

The greatest peril in life lies in the fact that human food consists entirely of souls. All the creatures that we have to kill and eat, all those that we have to strike down and destroy to make clothes for ourselves, have souls, souls that do not perish with the body and must therefore be pacified lest they should revenge themselves on us for taking away their bodies. —IVALUARDJUK, AN IGLULIK ESKIMO, *THE SACRED*, SEE REVIEW P. 29.



HERBERT MORTON STOOPS

It was, and still is in many places, a widely held belief that the part of the animal we see is not the real part but only a disguise, an outfit it wears when it comes to visit our world. Once home again, it removes that costume and changes back into its true form, a form which in most cases is said to be no different from that of humans. In fact, the animal and even the plant and mineral species are said to live just as we do. They have their own homes and families, and only put on their various disguises when they wish to trade or communicate with people of other tribes. —THE LANGUAGE OF THE BIRDS

Q What does it mean to have animal teachers? Especially of tolerance, patience, humor, and humility? Are animals and plants our spirit guardians, helpers, guides, or totems, that teach us the paths of life?

Mi-tsi was long a faithful member of the Little Fire order (Ma-ke-tsa-na-kwe) but he grew careless, neglected his sacrifices, and resigned his rank as “Keeper of the Medicines” from mere laziness. In vain his fathers warned him. He only grew hot with anger. One day Mi-tsi went up on the mesas to cut corral posts. He sat down to eat his dinner. A great black bear walked out of the thicket near at hand and leisurely approached him. Mi-tsi dropped his dinner and climbed a neighboring little dead pine tree. The bear followed and climbed it too. “Alas,” he cried, “pity me, my father from the Westland.”

So the black bear seized him by the foot and pulled until Mi-tsi screamed from pain; but, cling as he would to the tree, the bear pulled him to the ground. Then he lay down on Mi-tsi and pressed the wind out of him so he forgot. The black bear started to go; but eyed Mi-tsi. Mi-tsi kicked. Black bear came down and pressed his wind out again. It hurt Mi-tsi. “Oh dear me! The father thinks I am not punished enough.” So he kept very still. Then the black bear went slowly away, looking at Mi-tsi all the while . . . He was long sick for the black bear had eaten his foot. He “still lives and limps” but he is a good Ma-ke-tsa-na-kwe. —ZUNI FETISHES



FROM HISTORY OF CLOWNS FOR BEGINNERS

The Savage Mind

Claude Lévi-Strauss. 1968; 302 pp. \$16.95, University of Chicago Press.

Totemic thought that stays as current as mythological time.

Zuni Fetishes

Frank H. Cushing. 1966; 43 pp. \$3, K C Publications, PO Box 94558, Las Vegas, NV 89193-4558, 800/626-9673 or 702/433-3415, fax 702/433-3420.

The original anthropo-report on *anima mundi*.

The Others

(How Animals Made Us Human). Paul Shepard. 1995; 374 pp. \$17.95, Island Press, 800/825-1302.

In beauty, and in modern dysfunction, Shepard tracks the sacramental foodweb, finding signs and scats in this tour de force of the multi-disciplinary essay.

The Way of the Animal Powers

(Historical Atlas of World Mythology Series, Volume 1) Joseph Campbell. 1988; 140 pp. (Part 1), 176 pp. (Part 2), \$24.95 each (\$27.70 post-paid). HarperCollins Publishers.

The outer world as inner world, in detail.

The Language of the Birds

(Tales, Texts, & Poems of Interspecies Communication). David M. Guss, Editor. Out of print.

The most eclectic collection in the limbo zone of interspecies dialog.

The Way We Lived

(California Indian Reminiscences, Stories, and Songs). Malcolm Margolin, Editor. 1981, 1993; 262 pp. \$14.95. Heyday Books, PO Box 9145, Berkeley, CA 94709, 510/549-3564, fax 510/549-1889, heyday-books@heyday.com.

Scientific American

(“The Benefits and Ethics of Animal Research”). February, 1997. Volume 276, Number 2. Scientific American, Inc.

Best debate on animal experimentation issues.

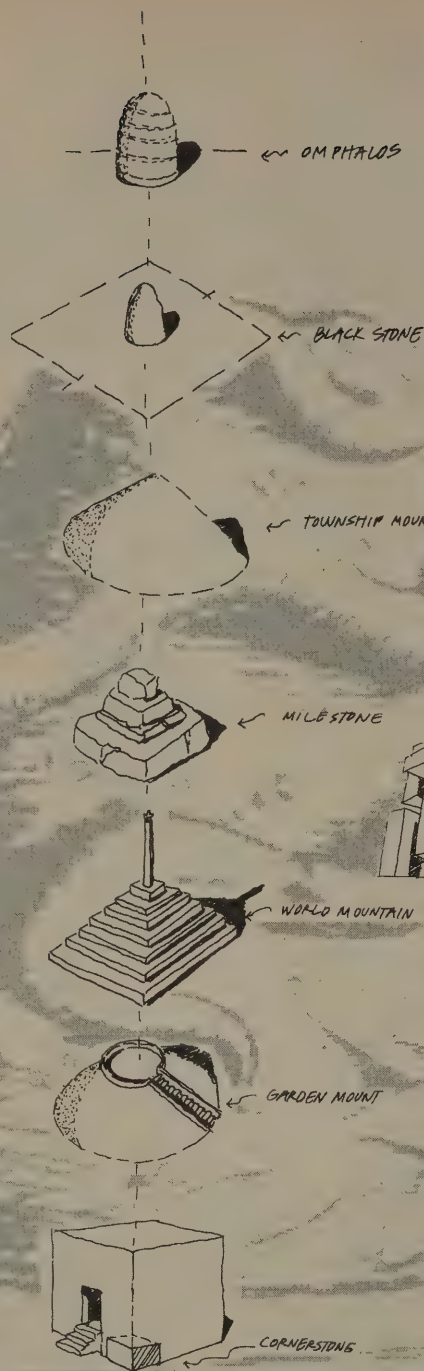
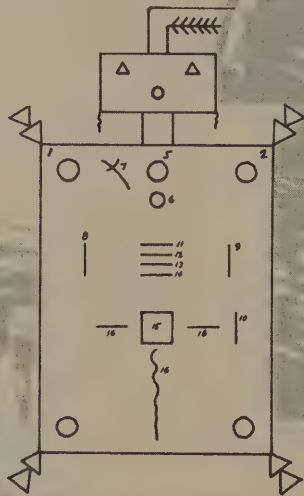
Inquiry Liturgy of Place?

Q Having landed in North America, many religions have not had time nor interest in embedding their prayers, liturgy, shrines, and pilgrimages into the sacred geography of this continent. How can religious imaginations whose geography focuses on the Middle East or Himalayan geography care for and conserve the American landscape in a religious framework?

What makes a place sacred or holy to native people is found here in one list of types of Navajo sacred places:

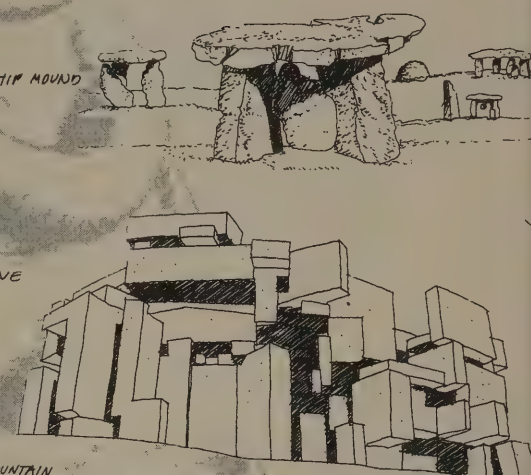
- 1) a location mentioned in [oral tradition]
- 2) a place where something supernatural has happened in oral tradition
- 3) a site from which plants, herbs, minerals, and waters possessing healing powers may be taken, and
- 4) where man communicates with the supernatural world by means of prayers and offerings. —THE SACRED (reviewed p. 28).

Navajo plan of the Earth. Numbers are mountains, points of emergence into this world, mesas, Dotso (the all-wise fly), the first plants of the world and other symbols of awe, inspiration, reverence and caution.



Q How can a property-embedded America come to respect areas with no built shrines and temples that native Americans believe are special holy grounds?

There are mountains hidden in jewels, there are mountains hidden in marshes, mountains hidden in the sky. There are mountains hidden in mountains. There is a study of mountains hidden in hiddenness. —DOGEN, ZEN MASTER



Civilizing Terrains

William Rees Morris, 1996; \$22.50, William Stout, 415/391-6757.

"Earth and mountain have lost their power to evoke civic action to join with geomorphic land forms to construct a collaborative terrain." Morris moves you by forty-nine pages of exquisite drawings with the most unique sense of history from holy grounds to urban terrain; and endlessly intriguing commentary on mountains, mesas, and mounds. The last time I remember a book as good as this was 1969: Vincent Scully's *The Earth, the Temple and the Gods*. —PW

Bioregionalism is the entry of place into the dialectic of history.

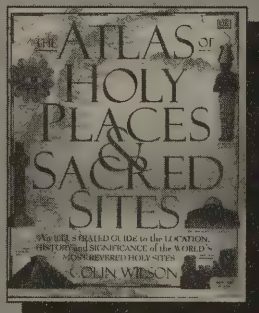
—GARY SNYDER

The Atlas of Holy Places and Sacred Sites

Colin Wilson. 1996; 192 pp. \$29.95, Dorling-Kindersly.

The top whole Earth atlas of gorgeous built holy places with coffee table pics, great maps, and introductory texts. (Suggested by Lyda Hadley.)

"... once [there was] a sacred forest on the hilltop



where Chartres now stands . . . An old well behind the cathed-

ral is believed to have been used by druids . . . Druids studied the bubbling of water when it had been vigorously stirred by an oak rod. So it seems that Chartres, like so many of the world's sacred sites, is built on a place regarded as sacred . . . perhaps for millennia."

Sacred Land, Sacred Sex: Rapture of the Deep

Dolores LaChapelle. 1988; 382 pp. \$24.95, Kivaki Press. The post-everything bible for a truly new world on Turtle Island.

Turtle Island Office

(212/226-7171). The network hub of bioregionalism.

Raise the Stakes

\$25 annual membership in Planet Drum Foundation includes two issues plus other publications. PO Box 31251, San Francisco, Shasta Bioregion, CA 94131, 415/285-6556, planetdrum@igc.apc.org. Main mag of the bioregional movement for over twenty years.

American Sacred Space

David Chidchester and Edward Linenthal, Editors. 1995; 352 pp. \$18.95, Indiana University Press.

No sense of place, no place of sense. Sacred space as contested values in the American landscape: holocaust museums, Indian land claims, the Christian home, Mt. Graham and Rushmore. Best intro to schools of thought by dedicated rational minds.

Yellowstone The Erotics of Place

STEAM RISING. WATER BOILING.
GEYSERS SURGING. MUD POTS
gurgling. Herds breathing. Hooves
stamping. Wings flocking. Sky dark-
ening. Clouds gathering. Rain falling. Rivers
raging. Lakes rising. Lightning striking. Trees
burning. Thunder clapping. Smoke clearing.
Eyes staring.

We call its name—and the land calls back.
Yellowstone.
Echo System.
Echo.

An echo is a sound wave that bounces back or is reflected from, a large hard surface like the face of a cliff, or a mountain, or the interior of a cave. To hear an echo, one must be at least seventeen meters or fifty-six feet away from the reflecting surface.

Echos are real—not imaginary.

We call out—and the land calls back. It is our interaction with the ecosystem; the Echo System.

We understand it intellectually.

We respond to it emotionally—joyously.

When was the last time we played with Echo?

The Greek god Pan played with her all the time.

Echo was a nymph and she was beautiful—long, dark hair flowing over her bare shoulders, lavender eyes, burnished skin and red lips. Pan was intrigued. He was god of wild nature—rustic, lustful, and seductive. But with his goat legs and horns, he could not woo Echo. She remained aloof, indifferent to his advances.

Pan was not accustomed to loving nymphs in vain. He struck her dumb, save for the power of repetition. Echo roamed the woods and pastures repeating what she heard. The shepherds became incensed and seized her. They tore her body to pieces.

Gaia, the Earth Mother, quietly picked up the pieces of Echo and hid them in herself—where they still retain their repetitive powers.

Pan, seeking no further revenge, strengthened his vows to love the land in all its wildness—dancing in the woods, in the fields and grottoes, on mountain-tops and in glens—dancing, chasing, and seducing the vulnerable, all in the name of fertility.

Pan, as we know him, is therianthrope—half-man and half-animal—with a bare chest and the lower limbs of a goat. Two small horns rise from his head like lightning rods. He is blessed with the goat's prodigious agility and

**TERRY
TEMPEST
WILLIAMS**

bestial passions. He wears a crown made of pine boughs and blows through pipes of reed.

He is a dangerous creature.

But we know Pan is dead. Elizabeth Barrett Browning has told us so:

Earth outgrows the mystic fancies
Sung beside her in her youth . . .

Pan, Pan is dead.

These lines are founded on an early Christian belief that when the heavenly hosts told the shepherds at Bethlehem of the birth of Christ, a deep groan was heard throughout Greece. Pan was dead.

When James Watt was asked what he feared most about environmentalists, his response was simple: "I fear they are pagans."

He is right to be fearful.

I would like to suggest Pan is not dead, that Echo lives in her repetitive world, in the cycles and circles of nature.

I would like even to suggest that the Greater Yellowstone Ecosystem/Echo System is a Pansexual landscape. Of Pan. A landscape that loves bison, bear, elk, deer, moose, coyote, wolf, rabbit, badger, marmot, squirrel, swan, crane, eagle, raven, pelican, red-tail, bufflehead, goldeneye, teal, and merganser.

Pansexual. Of Pan. A landscape that loves white pine, limber pine, lodgepole, Douglas fir, blue spruce, aspen, cottonwood, willow, sage, serviceberry, huckleberry, chokecherry, lupine, larkspur, monkshood, steershead, glacier lilies, spring beauties, bistort, and paintbrush.

Pansexual. Of Pan. A landscape where the Bitterroot Valley, the Sawtooths, Tetons, Wind Rivers, and Absarokas loom large in our imaginations—where Henry's Fork, the Clark Fork, the Snake, and the Missouri nourish us, refresh us, and revive our souls.

It is time for us to take off our masks, to step out from behind our personas—whatever they might be: educators, activists, biologists, geologists, writers, farmers, ranchers, and bureaucrats—and admit we are lovers, engaged in an erotics of place. Loving the land. Honoring its mysteries. Acknowledging, embracing the spirit of place—there is nothing more legitimate and there is nothing more true.

That is why we are here. That is why we do what we do. There is nothing intellectual about it. We love the land. It is a primal affair.

Pagans? Perhaps.

Involved in erotics of place? Most definitely.

There are rituals along the way. Doug Peacock writes in *Grizzly Years*:

"Before leaving for Bitter Creek, I had one more job to do: hide the head of the bull bison, which died in

Terry Tempest Williams is Naturalist-in-Residence at the Utah Museum of Natural History in Salt Lake City. Her books include *Desert Quartet*; *Refuge: An Unnatural History of Family and Place*; and *An Unspoken Hunger*, from which this essay is taken. "There is no separation whatever between me as a writer, an activist, and a Mormon woman," she has said. "The deep roots I have enable me to take risks. If you know where you are, you know who you are."



F. JAY HAYNES. THE YELLOWSTONE NATIONAL PARK, 1887

the open. If the Park Service discovers the head, rangers with sledgehammers are sent to smash the skull to pieces. This is to protect the bones from horn and head hunters, who spot the skull—perhaps from a helicopter—swoop down, pluck it up, and sell it to buyers who grind up every last piece of bone and antler for sale on the Asian market as an aphrodisiac.

“Late in the morning, I packed up for Bitter Creek wondering where I should hide the bull buffalo head. He should have stayed where he was forever. Barring that, I thought he should rejoin the bull herd of about a dozen bison with which he spent his adult life. I had been looking after this herd for years, and stashed other skulls when bulls died during hard winters. He would join his buddies in a semicircle of four bison skulls facing the rising sun. A mile away, hidden where they would never be discovered, below trees and under the snow, I brought together a ghost herd of bison skulls, decorated with the feathers of crane and eagle, the recipients of bundles of sage and handfuls of earth carried from sacred mountains and offered up in private ceremonies.”

Rituals, Ceremonies, Engaging with the land. Loving the land and dreaming it. An erotics of place.

Biologist Tim Clark says at the heart of good biology is a central core of imagination. It is the basis for responsible science. And it has everything to do with intimacy, spending time outside.

But we forget because we spend so much time inside—inside offices, inside boardrooms, inside universities, inside hearings, inside eating power breakfasts, power lunches, dinners and drinks.

To protect what we love outside, we are inside

scheming, talking, telephoning, writing, granting, faxing memos, memos, memos, memos to them, to us; inside to protect what we love outside.

There is no defense against an open heart and a supple body in dialogue with wildness. Internal strength is an absorption of the external landscape. We are informed by beauty, raw and sensual. Through an erotics of place our sensitivity becomes our sensibility.

If we ignore our connection to the land and disregard and deny our relationship to the Pansexual nature of earth, we will render ourselves impotent as a species. No passion—no hope of survival. Edward Abbey writes, “Nature may be indifferent to our love, but never unfaithful.”

We are a passionate people who are in the process of redefining our relationship toward the land.

And it is sensual.

I believe that out of an erotics of place a politics of place is emerging. Not radical, but conservative, a politics rooted in empathy in which we extend our notion of community, as Aldo Leopold has urged, to include all life forms—plants, animals, rivers, and soils. The enterprise of conservation is a revolution, an evolution of the spirit.

We call to the land—and the land calls back.
Echo System.

Steam rising. Water boiling. Geysers surging. Mud pots gurgling. Herds breathing. Hooves stampeding. Wings flocking. Sky darkening. Clouds gathering. Rain falling. Rivers raging. Lakes rising. Lightning striking. Trees burning. Thunder clapping. Smoke clearing. Eyes staring. Wolves howling into the Yellowstone. ⊕

From *An Unspoken Hunger* by Terry Tempest Williams. Copyright ©1994 by Terry Tempest Williams. Reprinted by permission of Pantheon Books, a division of Random House, Inc.

Inquiry Ecofeminism?

Q How does faith best help women care for the Earth and all of its creatures?

Ecofeminism is a vaster and vaster topic, and soon there may be no feminists left who are not ecofeminists. Even if not all environmentalists can or will adopt the title, ecofeminism still informs ecology. For essential background reading, try the anthologies *Reweaving the World*, edited by Irene Diamond and Gloria Feman Orenstein, and *Healing the Wounds*, edited by Judith Plant (both reviewed in *WER* No. 72, the "Goddess Issue"). In the two anthologies reviewed below, activist ecofeminism is explored in a context of religion and spirituality. These are fast-roiling, spicy, nourishing stews; pull up a chair and try some—we're going to need it. —ROBIN LEVEQUE

Women Healing Earth Third World Women on Ecology, Feminism, and Religion

Rosemary Radford Reuther,
Editor. 1996; 189 pp. \$17,
Orbis Books.



Reuther is one of those productive writers, author of many fine, germane books including her "culminating" work, *Gaia and God: An Ecofeminist Theology of Earth Healing* (which even gets into practical minutiae such as effective plastics recycling). Keeping to the themes of religion and activism, *Women Healing Earth* fills the bill and goes one step further—it is written entirely by women not of this world but of the "third" kind. There are entries from Brazil, Zimbabwe, Korea, El Salvador, India, the Philippines, and Malawi. Because nongovernmental ecological action is best effected on a truly

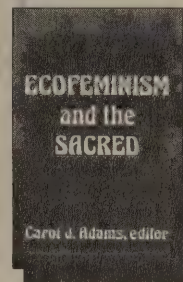


local, community-based level, women everywhere can be a vastly powerful force in keeping the living planet intact. How each writer experiences the way in which local spirituality and religion influence conservation and action (which can take forms quite different from those we may be accustomed to) invokes thought and a lot of admiration. —RL

Ecofeminism and the Sacred

Carol J. Adams, Editor. 1993; 340 pp. \$15.95,
Continuum Press Publishing Company.

Acknowledging the origin of the term "ecofeminism" first thing (from Francoise d'Eaubonne's 1974 edition of *Le féminisme ou la mort*), this compilation offers readings from twenty-two women. It is a triptych: "Revisioning Religion," "Envisioning Ecofeminism," and "Embodying Ecofeminist Spiritualities." I especially like that dissonant views are presented side by side, showing a wide range of thought and coincidentally not bamboozling anyone into thinking that this is a seamless monocultural field—or meadow. Many things, fierce and friendly, can grow here and see what they turn out to be. —RL



Ecofeminist Voices

Rosemary Radford Reuther:

When privileged Northern or First World feminists lay hold of this [fall-from-paradise-into-patriarchy] story as their identity myth, it can lead to some illusions and irresponsibility. The story can be read by First World ecofeminists who choose to worship the Goddess as if they, simply by shifting their religious images and practices, can see themselves in direct continuity with the innocent victims of patriarchal conquest over ten thousand years. They don't have to examine and take responsibility for their actual social context as heirs and beneficiaries of this conquest as First World affluent people.

Many essentialist or matricentric First World ecofeminists fail to make real connections between their own reality as privileged women and racism, classism, and impoverishment of nature. Relation with nature is thought of in psycho-spiritual terms as rituals of self-blessing, exultant experiences of the rising moon and seasonal wonders. I don't disvalue such ceremonial reconnecting with our bodies and nature . . . but [it] can become a recre-

ational self-indulgence for a privileged counter-cultural Northern elite if these are the *only* ideas and practices of ecofeminism; if the healing of our bodies and imaginations as Euro-Americans is not connected concretely with the . . . realities of over-consumerism and waste. . . . We must recognize the ways in which the devastation of the earth is an integral part of the appropriation of the goods of the earth whereby a wealthy minority can enjoy strawberries in winter, winged to their glittering supermarkets by a global food procurement system, while those who pick and pack the strawberries lack the money for bread and are dying from pesticide poisoning. —WOMEN HEALING EARTH

Robin Leveque:

"I think even lying on my bed I can still do something," said Dorothea Dix. Certainly there is more to ecological activity than cleaning up oil spills, more to activism than bodily being on the front lines of the war against corporate villainy. We can be actively ecological in the ways we live. We can agitate for a healthy environment in whatever way suits us best (there's so much to do—pick one). And we can reform our mindsets in accordance

with nature's virtues and let the ripples spread to other minds.

Fight, scour, and restore: noble acts in the name of the Earth. Equally elegant actions are praying, chanting, meditating, worshipping, loving, and thinking out loud for the Earth. These are not wimpy, ineffective, contemptible, self-involved exercises. If to "change the world" we need to change our minds, these are the kinds of actions that matter, whatever the affective terms to which we gravitate: Pagan, deep ecology, Goddess, shaman, Mother Earth, eco-justice, Odudua, the Beloved, Green Man, creation spirituality, Shinto, paraclete, Spider Woman, Gaia, Lord and Lady, ecopsychology, or ecofeminism.

Joanna Macy:

It is my experience that the world itself has a role to play in our liberation. Its very pressures, pains and risks can wake us up . . . release us from the bonds of ego, and guide us home to our true vast nature. . . . For some of us our love for the world is so passionate that we cannot ask it to wait until we are enlightened.

—WORLD AS LOVER, WORLD AS SELF,
see review p. 37.

Ecofeminist? Woman Ecologist? Female Environmentalist? or Just Plain Visionary?

Lynn Margulis
Rachel Carson
Wangari
Maathai
Judi Bari
Joanna Macy
Dian Fossey
Mabel Osgood
Wright
Hunter Lovins
Dolores Huerta
Sara Parkin
Charlene
Spretnak
Jane Goodall
Ellen Swallow
Richards
Vandana Shiva
Mary Austin
Petra Kelly
Karen J. Warren
Carol Adams
Theo Colburn
Donella
Meadows
Starhawk
Ursula LeGuin
Karen Silkwood
Magaret Sanger
Bertha Mosely
Hazel
Henderson
Jane Addams
Kathryn Fuller
Helen Caldwell
Ynestra King
Lois Gibbs
Brianda
Domenech
Aruna
Gnanadason
Alice Walker
Mayumi Oda
Susan Griffin
Helen Norberg-
Hodge
Dolores
LaChappelle
Winona LaDuke
Nancy Jack Todd
Terry Tempest
Williams
Val Plumwood
Sister Mirisa
Terese McGillis
Stephanie Mills
Judith Plante
Carol Merchant
Greta Gaard
Sylvia Earle
Marjorie Moore

Center: The
Luscious Lady
of Latex, an
installation by
artist Jay
Critchley,
watches over
rubber trees
in the
rainforest

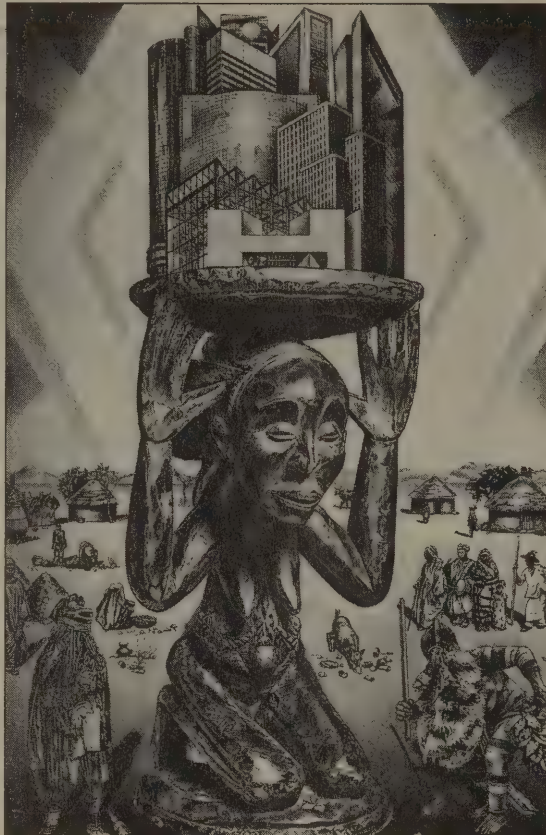
Environmental Justice?

Q How do religious communities combine healing the Earth with the healing of the poor, the outcast, and the sick—with justice, tolerance, and solidarity between the haves and have-nots?

The US environmental movement—desperate to stop the loss of legacy forests, wetlands, and other ecosystems—lost the human track. They ignored industrial/consumer society diseases caused by heavy metal, petrochemicals, uranium, and other toxics; inequitable siting of waste dumps and landfills; overly slow public health responses by government, and meager compensation and insurance payments to victims.

The American racial and ethnic victims could not forget. They sent out a moral wake-up call to the basically white, middle class conservationist advocacy groups. The Anglo-European enviro community has heard the call and slowly, through multi-religious/ethnic/racial/labor coalitions, begun to rectify the double whammy: pollution and picking on the easiest victim.

Now enviro-justice tasks are widespread. From Brazil to India to the United States, the stories of conservation-based development include human rights. A global report would require a whole issue.
—PW



THE GODS CRIED AGAIN FROM THE HUT IN ME, 1983; NANCY WOLF. COURTESY OF MARSHA MATEYKA GALLERY, WASHINGTON, DC.

Population & Consumption Management?

Q There are those who believe that making love is primarily for reproduction and that artificial birth control impedes the divine will playing itself out in nature. Does caring for the Earth require a change in this theological outlook?

Q When does an embryo, an infant, a child, or a teenager have a soul? This moment of faith molds much of family management: abstinence, contraception, abortion, infanticide, delayed marriage, adoption, sterilization, or the number of children per family.

Q When is a human life completed, and who decides? When is it a morally acceptable time to die? To send sons to war? To turn off the life support? To help a suicide? To let the body pass away so the soul can journey on?

Q Is the problem too many people, and/or is it excessive consumption by the industrialized nations? Does the Earth provide for everybody's need but not for anyone's greed? Can the moral and religious imagination and the resulting good works balance need and greed?

Unequal Protection

(Environmental Justice & Communities of Color). Robert D. Bullard, Editor. 1994; 392 pp. \$16, Sierra Club Books.

Already the clarion-call classic. Tough, revealing secular focus.

Eco-Justice

(Linking Human Rights and the Environment). Aaron Sachs. Worldwatch Paper No. 127. 1995; 68 pp. \$5 (\$8.00 postpaid).

Worldwatch Institute.

The entry-level pamphlet to jump-start the conscience.

Toxic Waste and Racism in the United States

United Church of Christ Resources. \$20 (\$23.50 postpaid), 800/325-7061.

People of Color Environmental Groups

Robert D. Bullard. 1994; 194 pp. Free. C.S. Mott Foundation, 1200 Mott Foundation Bldg., Flint, MI 45802-1851; 810/766-1766, fax 810/766-1753.

Southwest Network for Environmental and Economic Justice

PO Box 7399, Albuquerque, NM 87194-7399; 505/242-0416, fax 505/242-5609.

Need, Greed, & the Planet's Population

Consumption, Population, and Sustainability

(Perspectives from Science and Religion). Audrey Chapman, Rodney Petersen, and

Barbara Smith-Moran, Eds. 1998, Sheed and Ward.

If we had had this manuscript earlier, our overview would have been even more comprehensive. Great essays on religious communities and population, as well as women's roles. The science seems old; the religious dialog on the verge of big-hearted breakout. No native religions!

Population, Consumption, and the Environment

(Religious and Secular Responses). Edited by Harold Coward. 1995; 319 pp. \$19.95, SUNY Press.

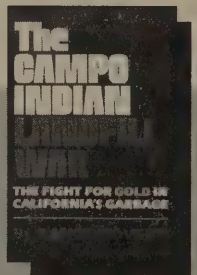
At its best, Yuichi Inoue on the Northern consumption issue, it is brilliant and informative. Mostly, it's very seri-

ous aboriginal, Islamic, Jewish, Christian, Hindu, and Buddhist professors and policy wonkers muddling their way.

The Campo Indian Landfill War

(The Fight for Gold in California's Garbage). Dan McGovern. 1995; 325 pp. \$24.95, University of Oklahoma Press.

Wanna get real? Read how the Campo Indians desired a landfill and their neighbors fought a war of attrition to defeat it. Was this a case of environmental justice? Picking on poor Indians whose dream of riches came from accepting garbage? Or was this more white paternalism—implying that the Campos were too uneducat-



ed or primitive to weigh for themselves the advantages and risks of a landfill above fractured rock and an aquifer? McGovern's narrative care and fairness are beyond reproach. Here is the tapestry of America eaten by a hundred moths, but still incredibly resilient and, in its own imperfect ways, protective of peaceful multi-cultural conflict resolution. Viva NEPA (National Environmental Protection Act)!

Intergenerational Equity?

Q Who “owns” the land? How you perceive the relationship between Holiness and land influences both intergenerational equity and conservation.

Sabbath and Jubilee in Leviticus by Carol Robb,

MARGARET DOLLAR PROFESSOR OF CHRISTIAN SOCIAL ETHICS AT SAN FRANCISCO THEOLOGICAL SEMINARY.

Care for the earth, justice, and a land ethic that transcends generations all converge in often-overlooked scriptures that both reveal the world of the people of the texts and speak to political and ecological questions of our time. Specifically, the debt-remission legislation, portrayed throughout the Hebrew scriptures and supported by Jesus of Nazareth (look at the Lord’s Prayer: “Forgive us our debts as we forgive our debtors”), is most significant for ecological relations.

The peasant farmers of the Hebrew scriptures, as well as in first-century Palestine, were pressed by urban elites to produce crops for export, rather than crops for family and village nurture. Because those elites had capital to loan, farmers—and their descendants—risked losing control over their land when they were unable to pay back the loans and interest. The law embodied in the scriptures responded with provisions that militated against the accumulation of the land in the hands of an absentee urban elite, and protected the rights of the poor and wild creatures to the produce of the land.

Leviticus 25:23: “The land shall not be sold in perpetuity, for the land is mine; for you are strangers and sojourners with me.”

The Holiness Code given to Moses on Mt. Sinai is the most important covenant in terms of the amount of time spent describing it. The covenant with God is not about cultic purity; it is about how to live in right relationship with each other and God. Fundamental to that relationship is the understanding that the land is God’s. Landowners had responsibilities to God’s land and to God’s wild creatures. They could never fully own it to the exclusion of God’s justice. Private “ownership” rights to use the land existed within guidelines of obligations to others and to the land itself. Several prescriptions follow: leaving the soil fallow periodically; remission of debts; return of each individual to her or his family property.

Leviticus 25:3: Six years you shall sow your field, and six years you shall prune your vineyards, and gather its fruits; but in the seventh year there shall be a Sabbath of solemn rest for the land, a Sabbath to the LORD; you shall not sow your field or prune your vineyard.

The agricultural Sabbath can be viewed as a prescription for sustainable agriculture. The priests who wrote the Sabbath, drawing on older oral traditions, were not farmers, and spaced the fallow period too widely for many soil conditions. But the principle of rest and regeneration for the land was certainly recognized. The same premise today would inform our attitude toward soil and water-table depletion and chemical poisoning. If we are but sojourners on the land, we have no right to use it up or destroy it during our generation.

Leviticus 25:5: What grows of itself in your harvest you shall not reap, and the grapes of your undressed vine, you shall not gather, it shall be a year of solemn rest for the land.

This prescription allows for the increase of wildlife, since the birds, rodents, and deer would undoubtedly make off with the food. It allows the predators involved in bio-control to replenish their forces as they have a year of undisturbed feasting on “pests” to the farmer (jackals on field mice). This grand scheme relies on God to provide enough food from the previous harvests (“I will command my blessing upon you in the sixth year, so that it will bring forth fruit for three years”).

Exodus 22:25: If you lend money to any of my people with you who is poor, you shall not be to him as a creditor, and you shall not exact interest from him.

Leviticus 25:10: And you shall hallow the fiftieth year, and proclaim liberty throughout the land to all its inhabitants; it shall be a jubilee for you, when each of you shall return to his property.

Short-term loans are a part of farming life. The harvest is the security on such loans. In biblical Palestine, the land, or oneself,

or one’s children served as collateral for loans when the harvest was insufficient. One way to accumulate land was to loan money to farmers, charge twenty percent or more interest, and wait for drought or pestilence. The prophets, including Jesus, decried such land accumulation.

The laws of the covenant said that interest should not be charged on small loans. If farm families lost their land, richer relatives had the first option to purchase before non-relatives. If there was no one who could redeem the land in the event of a foreclosure, the debt would nevertheless be canceled and the land returned to its original owner during the Jubilee, every fifty years. The institution of the Jubilee limited the impact of poor luck or poor farming practices to one generation, preventing stratification from taking on a deep and rigid intergenerational quality.



Becoming Native to this Place

Wes Jackson. 1996; 121 pp. \$12.50, Counterpoint.

Altars of Unhewn Stone

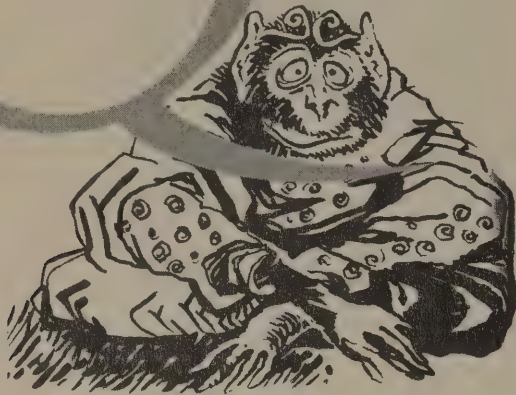
Wes Jackson. 1987; 158 pp. \$12.00, North Point Press.

Wes Jackson pays more careful attention than anyone we know to intergenerational family farms, the loss of communities, soil and water, and species legacy. His salt-of-the-earth prose is not bashful about using biblical language. —MKS

“In Iowa, five to six bushels of soil by weight are eroded away for each bushel of corn produced. This erosion is the product of an economic system that either regards nature’s storehouse as infinite or else simply discounts the future. . . . It seems the promoters and apologists for this economic system have never heard of justice between generations. —ALTARS OF UNHEWN STONE



Inquiry Clowns



Q Need to prevent burnout, despair, exhausted spirit? Need to shake off the doom-gloom surrender syndrome of certain envoi and Jeremiad prophecies?

A Bring clowns inside spiritual ceremonials and actions that honor the Earth.

To us a clown is somebody sacred, funny, powerful, ridiculous, shameful, visionary. He is all this and then some more. Fooling around, a clown is really performing a spiritual ceremony. He has a power. It comes from the thunder-beings, not the animals or the earth. In our Indian belief, a clown has more power than the atom bomb. This power could blow off the top of the Capitol. I have told you that once I worked as rodeo clown. This was almost like doing spiritual work. Being a clown, for me, came close to being a medicine man. It was the same nature. —Lame Deer

The History of Clowns for Beginners

Written and illustrated by Joe Lee. 1995; 180 pp. \$11, Writers and Readers Publishing, PO Box 461, Village Station, New York, NY 10014.

Tricksters, fools, clowns, shamans, the Marx Brothers, and other certifiable maniacs adding chaos, creativity, and irreverence. An incredibly well-drawn, outrageous little book falling through the hole between a dirty joke and a religious experience. —PW

“Christianity counts seven deadly sins, perhaps there are eight and the eighth and most deadly of all, no sense of humor.

“The false faces are masks (no, not the plastic surgeon’s nip and tuck) carved, quite literally, from the living trunk of a tree. . . . Some have specific identities, such as “Crooked Nose” who had the chutzpah to challenge the Creator to a mountain moving contest and did his nose injury when he turned to find a mountain right over his shoulder. Many are just anonymous zanies. . . . Yes, these strange creatures are counted great healers and, indeed, much of Native American clowning is considered a healing act.

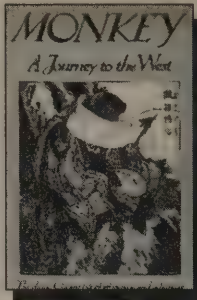
Monkey A Journey to the West

Translated and retold by David Kheridan. 1992; 209 pp. \$17, Shambhala.

Chinese trickster leaves the East goes West and never leaves the palm of Buddha’s hand. A classic. —PW

“High atop a mountain, surrounded by favored earth that nourished magic fungi and wild orchids, there came to be a magic stone of immortal dimensions and properties. It was fructified by the seeds of Heaven and Earth, and by the essences of the sun and the moon, until one day it was impregnated by divine inspiration, and became pregnant with a divine

embryo. The embryo continued to develop in secret, until one day it burst open to reveal a stone egg. Once the egg was exposed to the elements, the wind soon transformed it into a stone monkey, complete in every way and in all aspects of its being.



A Coyote Reader

William Bright. 1993; 202 pp. \$16.95, University of California Press.

Wanderer, glutton, lecher, thief; cheat, outlaw, spoiler, loser; clown, pragmatist, horny old man; *bricoleur*, survivor; once-and-future spiritual dingbat. If your religion has a big heart, Coyote’s inside it causing havoc and wisdom. Poems and stories and, if you don’t like stories, there’s excellent commentary in between them. —PW

“When the people emerged from the Underworld it was dark, so they made stars and told the War Twins to go place them properly. Coyote said to himself, “I will go with the two boys.” They put the seven together, the Pleiades, in good position, and those six, Orion, they put them together, and the biggest one they put toward the east, and another they put on the south side, and another on the west side, and another on the north side. Then they put up the dipper. . . . Coyote said to himself, “It is a big job!” He said to the boys, “We shall never finish this work, we shall all die first, why can’t we do this?” And he took the stars and threw them in every direction, improperly. . . . [The people] were very angry. But Coyote said, “That’s all right, it’s a lot of work to put them all into good positions, better to scatter them around.”

—HAMILTON TYLER, *Pueblo Animals and Myths*



Above: Monkey was not content with the good life. Center: Jester’s uniform is an amalgam of all the symbols of folly. Right: Coyote laughs under the moonlight. —A History of Clowns for Beginners.



Turtle Island

GARY SNYDER

For All

... I pledge allegiance

I pledge allegiance to the soil
of Turtle Island
and to the beings who thereon dwell
one ecosystem
in diversity
under the sun

With joyful interpenetration for all.



CREATION OF TURTLE ISLAND, BY ROY THOMAS. FOR A COMPLETE LISTING OF ROY'S COLLECTIONS, EMAIL THE ABORIGINAL VIRTUAL ART GALLERY, NORONT@FOXNET.NET.

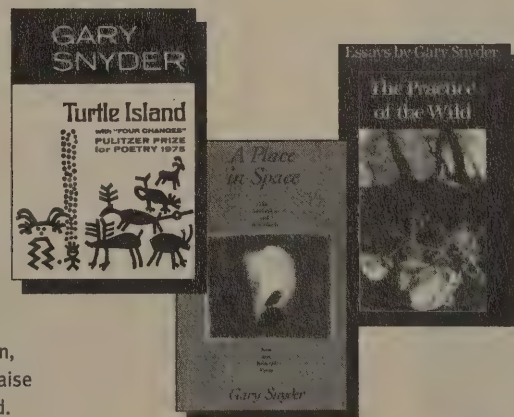
Turtle Island—old/new name for the continent, based on many creation myths of the people who have been living here for millennia, and reapplied by some of them to “North America” in recent years. Also, an idea found world-wide, of the earth, or cosmos even, sustained by a great turtle or serpent-of-eternity.

A name: that we may see ourselves more accurately on this continent of watersheds and life-communities—plant zones, physiographic provinces, culture areas; following natural boundaries. The “U.S.A.” and its states and counties are arbitrary and inaccurate impositions on what is really here.

The [*Turtle Island*] poems speak of place, and the energy-pathways that sustain life. Each living being is a swirl in the flow, a formal turbulence, a “song.” The land, the planet itself, is also a living being—at another pace. Anglos, Black people, Chicanos, and others beached up on these shores all share such views at the deepest levels of their old cultural traditions—African, Asian, or European. Hark again to those roots, to see our ancient solidarity, and then to the work of being together on Turtle Island.

We end this section with two of Gary Snyder's missives. He has so many that have helped enlighten holy and bloody messes and mesas. No other writer has gifted America with as sharp-edged deep ecological language.

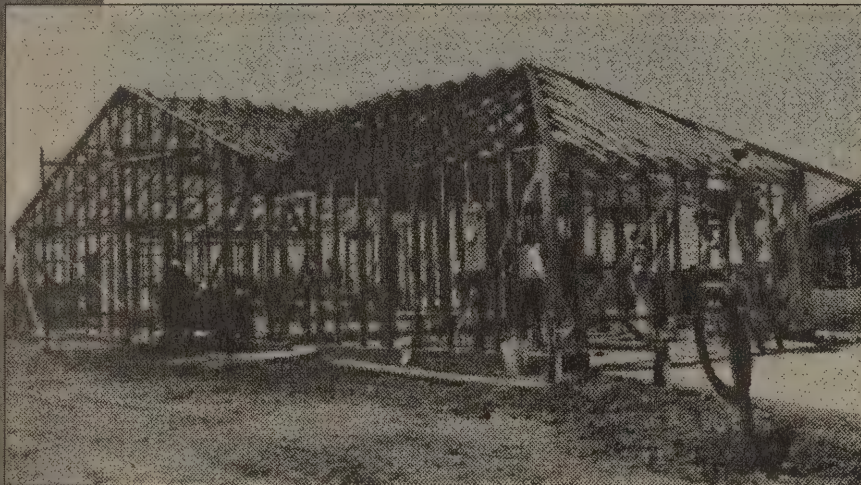
The Practice of the Wild, *A Place in Space*, and *Turtle Island* contain the liver and bones essays of Gary's vision, the invocation and praise of the inhabited world.



STUD

FRAMING HOUSES WITH STEEL OR WOOD

DAN IMHOFF



A 1,440-s.f. steel-framed house under construction. ENVIRONMENTAL BUILDING NEWS (see review, p. 63).

WHEN ASKED TO INVESTIGATE THE ISSUE OF WOOD VERSUS STEEL FRAMING STUDS, I WAS FIRST

skeptical, later panic-stricken. My wife and I were nearly finished with construction of a house in northern California's Anderson Valley. Because of its remote location, an off-the-grid solar electric system seemed an obvious decision. Despite our site limitations, we opted for a cement slab floor with radiant heat fueled primarily by solar hot water collectors. We eliminated the straw bale alternative because we weren't building the house ourselves. For framing studs we specified two-by-six Douglas fir certified by the Rainforest Alliance's SmartWood program. We never considered light-gauge steel framing studs. Had we ignored an important ecological opportunity?

I harbored preconceived prejudices against steel. My grandfather worked his way through the Carnegie Institute in the nineteen teens in foundries

which blackened the city of Pittsburgh, Pennsylvania. I perceived steel as a pollutive industrial product, responsible for spewing NOX (nitrous oxide), SOX (sulfuric oxide), and other greenhouse gases. (Trees, on the other hand, are reputed "carbon sinks," sequestering CO₂ and slowing the greenhouse effect.) Steel's upstream manufacture depends on open-pit mining as well as energy- and water-intensive production. The image of vast rolling tracts of carefully managed forests appealed more to me. Our ancestors built with wood. Framing with steel seemed akin to choosing polyester over organic cotton underwear.

The Framing Debate

But the residential stud market has become hotly contested in recent years, with trade associations for steel and wood industries spending hefty budgets to convince builders and home owners that their materials are inherently more environmentally responsible. Today wood remains the housing stud of choice by far. The American Iron and Steel Institute estimates that just two percent (or 27,000) of new homes are presently steel framed each year.

In truth, decades of industrial-scale logging have rendered wood a precious commodity, with prices increasing and fluctuating wildly, and the quality of materials in perpetual decline. With the exception of emerging certified timber suppliers—who remain divided over the interpretation of "sustainable forestry"—wood can in many circumstances be considered an industrial product. Trees are farmed in corn field fashion, relying on fast-growing varieties and cutting ever-smaller-diameter trees, creating potentially devastating environmental consequences: loss of biodiversity and silting of streams and watersheds mostly from road building. Just as paper makers have been keen to secure alternative pulping

Dan Imhoff is a northern California-based free-lance writer specializing in design, sustainable agriculture, and the environment. His writings have appeared, among other places, in *Communication Arts*, *Saveur*, *Farmer to Farmer*, and *Plain*.

materials that offer consistent pricing and fiber quality, steel studs have emerged as a possible economical construction alternative. But how does steel stack up environmentally?

Embodied Energy and Other Factors

Environmental Building News (EBN, see review p. 57) devoted an entire issue (July/August 1994) to the steel-versus-wood framing question. Author Nadav Malin carefully researched the essential categories for comparing the two materials: embodied energy, manufacturing emissions, renewability of resources, end-of-use recyclability, thermal efficiency, pricing, earthquake and fire performance, and air quality. Malin concluded that certified, sustainably harvested wood was preferable for external wall framing, but that light-gauge steel offered potential advantages in specific applications and hot climactic zones.

Contrary to what I imagined, we won't be running out of steel any time in the near future. *EBN* and others report that deposits in the Mesabi Range of northern Minnesota—the origin of most domestically consumed iron ore—hold enough raw material for several centuries of consumption. While mining operations for the iron ore, limestone, coal, and zinc that contribute to steel production all involve the destruction of ecosystems, these land-based activities have become highly concentrated.

Most analysts agree that steel's toxic emissions related to manufacturing greatly outweigh those of wood. To its credit, the steel industry has curtailed CO₂ emissions. Acid-rain-inducing sulfuric oxide pollutants have been reduced by as much as ninety-five percent in the past decade. Steel framing contains an average of twenty-four percent recycled material, although potential for ninety percent recycled content exists. Steel does have a number of positive attributes. Insect, earthquake, and fire resistance. The opportunity for consistent quality and, though yet to be achieved, virtually endless recyclability. Price stability. Abundant materials. It may even be determined that steel framing can save materials. Building codes are presently based upon the performance of wood studs. Perhaps, however, new solutions could be discovered by factoring in the advantages of steel to structural design.

In terms of the embodied energy used to manufacture a stud, steel out-consumes wood by twenty percent in a study cited by *EBN*: fifty-three million BTUs for steel versus forty-two million BTUs for wood per 2,000-square-foot house. When viewed in the context of heating and cooling a septuagenarian

house, however, these differences in embodied energy become almost negligible. According to the Environmental Protection Agency, heating and cooling an average house gobbles up between forty-eight and ninety million BTUs a year, roughly the amount of energy needed to produce framing materials.

Heat Transfer: Whose Achilles' Heel?

EBN's (and others') most salient argument against steel stud framing focuses on thermal performance throughout the life of the building. The biggest disadvantage steel poses is thermal bridging—in which cold or hot air are drawn to the stud resulting in a heat loss or gain. Citing a study in the *Journal of Thermal Insulation* the *EBN* report said that steel had a twenty-two percent lower R-value than similar wood construction in a section of wall with studs only. In cold climates this would obviously be prohibitive. In hot weather, condensation from heat gain could result in moisture damage. "Ghosting" was listed as another warm climate drawback, in which electrostatic cling causes dust to collect along the steel framing, requiring frequent re-painting.

For interior walls, *EBN* suggested that light-gauge steel frames wouldn't pose a thermal bridging problem. And in tropical regions, where wood framing materials are frequently treated with toxic preservatives to ward off rot, diseases, and insect damage, steel studs could present an ideal alternative.

Dr. Stan Rhodes of Scientific Certification Systems has spent four years comparing the two framing materials. While Rhodes says that thermal bridging is definitely a factor in northern climates (such as Maine or Minnesota), he argues that insulating studs effectively seals the metal from air, thereby eliminating any bridging likely to occur. Other experts debate whether insulating with extruded polystyrene or polyisocyanurate foams is cost-effective in a direct steel-for-wood substitution.

According to engineers at the Oak Ridge National Laboratory (ORNL), manufacturers must modify stud designs to increase R-values, such as cutting out wedges to reduce mass without greatly compromising strength.

"What isn't settled," says Rhodes, "is the effect of warping over time in conventional houses, especially with the diminishing quality of wood." Theoretically, steel can form a tightly locked, rigid, structure. Inferior-grade wood can warp, twist, and shrink—initially and over time. Significant thermal inefficiency can be detected in wood framed houses as early as five years after settling, says Rhodes, due to gaps in



Steel vs. Wood

Stability: Steel is more consistent. Plantation tree studs are often of low quality. Old and mature growth is highest quality.

Price: Sometimes favors steel, sometimes wood. Certified wood studs are about 10-15% higher than market price.

Thermal bridging: Wood is better for outer walls. Evens out in interior walls and warmer bioregions.

Insects: Steel is better in tropics when toxic preservatives are needed for wood.

Resource: Farmed wood and iron ore supply will not be an issue for the next 20 years. Old-growth and intact forests are a major issue. Steel environmental practices and emissions, despite US and European improvements, are major issues.

Process: Wood, except for toxic additives, has no major issues. Steel processing has major impacts despite improvements.

Re-use: Steel has big re-use advantage, although recycled content is still very low. Toxic wood is now handled as hazardous waste; it resists degrading.

Consumption Facts

- 1,350,000 new homes are started in the US each year.
- 400,000 prefabricated homes are made each year.
- A typical home needs 400 studs.
- 540 million studs are needed per year in the US.

Wood Stud Price

Complex Driving Forces

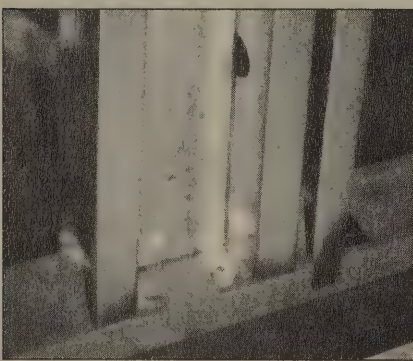
- General economy (interest rates, strength of dollar)
- Housing starts (mortgage rates, disposable income)
- Reduced tree growth from pollution (scarcity of size, quality of lumber)
- Legacy forests removed from market (the "spotted owl" force)
- Import/export and plantation prices for softwood lumber (the "Asia/Pacific" force)
- Substitutions such as steel studs, cement blocks, straw bale, engineered wood.

building corners or in the interface where walls and roof lines connect. Other industry experts point out that builders are becoming increasingly frustrated with rejecting as much as twenty percent of each truckload of wood studs due to unacceptable imperfections.

It is critical to remember that framing is just one part of the overall building envelope. Framing members account for between eighteen percent and twenty-five percent of a house's structural materials. Roof and floor framing each add between a fifth and a quarter. Heat is not only transferred through wall studs, it is also radiated through doors and windows, convected through holes and cracks. Many of the thermal studies I have seen are computer models and simulations based on clean walls only, with no doors or windows. Analyst Dr. Harold Glasser, at the Foundation for Deep Ecology, wonders whether focusing on the thermal bridging is perhaps too narrow and theoretical. "All sources of heat transfer in a house have to be considered to assess the true impacts of thermal bridging. You have to analyze the studs in the context of the overall building envelope. Studies must move to actual working houses."



Bend flange.



T-wall.

Land Use or Abuse?

"What is clear to everyone involved in the issue is that we must move from a system of rampant land abuse to one of well thought-out land use," Rhodes says. This is where he sees that steel offers its most compelling alternative.

While wood proponents call for certified "sustainable" harvesting methods, advocates of steel studs point to the sheer amounts of forest land that could potentially be "retired" by substituting steel for wood. Rhodes walks me through a simple calculation to make his point. A large basic oxygen process (BOP) steel mill producing two million tons of galvanized steel adequate for home housing requires 1,000 square acres for production. (At three pounds per eight-foot non-load-bearing stud, that equals 1.3 billion units.) He estimates the equivalent amount of woodland required to match that volume of studs to be fifty to sixty million

acres. (Gulp. My new house was starting to look very consumptive.)

Can Home Builders Embrace the Shiny Stuff?

Depending on structural timber prices, non-load-bearing steel studs can cost as much as \$1 less per eight-foot unit, while load-bearing units are priced comparably to their timber-based counterparts.

For at least fifty years, steel framing's traditional domain has been commercial buildings. The residen-

tial housing market has been slow to assimilate steel structural techniques into custom-built homes.

"There are steel men and there are carpenters," says Deffet, explaining what he believes is the most significant hurdle in bringing steel to the residential stud market. "Carpenters don't want to go near traditional steel framing. For the uninitiated, it's a nightmare. A massive re-education and training program has to take place for any real change to start." Resistance is understandable. Working with steel entails new measuring systems and fastening mechanisms. Contractors are conditioned to purchasing materials from lumber yards. Framing an all-steel building presently takes longer and costs more than one made of wood. And on a blistering hot California summer afternoon, you can imagine which material you'd rather be working with. "They don't want to go near the shiny stuff," Deffet says.

How Certified Wood Stacks Up

What, then, of the locally sourced, certified Douglas fir studs we used to frame our home, which in 1994 *EBN* deemed our most environmentally appropriate decision? This year sustainable forestry expert Reed Noss toured three sites in Mendocino County, California, managed by the local forester who cut the wood for our framing lumber.

"Although I can only imagine I was shown areas forested with the lightest touch," Noss told me, "it was pretty clean selective harvesting. There was some cable yarding [steel cable for hauling fallen trees] up hillsides which had caused disturbance, but no signs of clear cutting. There were some important concerns, such as the presence of very few snags and few woodpeckers. But a spotted owl was reported to be living in one area." Noss continued, "For private land management this was better than most." (Phew.)

Our own contractors on the job were extremely satisfied with the wood. It cost ten percent above market price, but was significantly superior (straighter, with tighter grain and few rejects) than what would normally have been sourced at the lumber yard. And because we were blessed with the best framing carpenter in the valley, our chances of minimizing cracks, holes, and other leak sources were drastically improved.

A Broader Perspective

If we are going to satisfy basic needs while preserving what wilderness and biodiversity remain, we must be willing to broaden our perception of materials and forge more regionally-based resourceful solutions for the conventional building trades.

As a start, for me, this means the next time I see a yard full of abandoned cars and trucks, I'm not only going to think of it as junk despoiling the countryside, but as a great pile of building studs with the potential to keep public and private forests uncut. ⊕

Environmental Resource Guide

The American Institute of Architects, Joseph A. Demkin, Editor. 1996, \$175, John Wiley & Sons, Inc.

This intelligent six-year-old has grown rapidly into a massive, essential reference for architects and builders committed to (or coerced into) improved environmental performance. It contains richly detailed analyses of the environmental costs associated with the life-cycle of common building materials. The not-nearly-full, three-inch-thick, three-ring binder leaves room for continued growth as the publisher updates existing chapters and produces new ones. A new layout and organization makes it much easier to find information than in the previous (thinner) incarnation. How to use the knowledge is still left up to the designer. That is never a simple matter, but this guide should help. —J. Baldwin



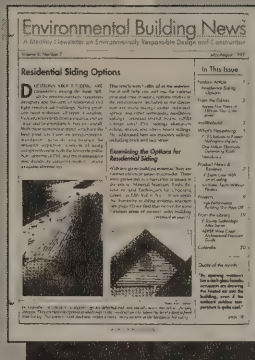
Environmental Building News

Alex Wilson, Editor. \$67/year (10 issues), CD-ROM \$165 (\$95 for subscribers), RR 1, Box 161, Brattleboro, VT 05301, 802/257-

7300, fax 802/257-7304, ebn@ebuild.com, www.ebuild.com.

Anyone involved in the building trades should consider **Environmental Building News** as a potential resource. **EBN** wades through the wild claims of new products and issues, assessing techniques and the

cradle-to-grave environmental impacts of its materials and processes. Each sixteen-page newsletter offers at least one investigative piece on a wide range of topics: building materials, energy conservation and renewable technologies, water and air quality, even community planning. You'll find carefully researched features on straw bale construction, rainwater harvesting, recycled carpets, and conserving open space. If you haven't been tuned into **EBN** over the past five years, the good news is that all of their issues through April, 1997, have been released on a carefully indexed CD-ROM, complete with its own search engine. The how-to and where-to-call is there too. —Dan Imhoff



Also Check Out

Center for Building Science News

Ed Vine, Editor. Published quarterly by Lawrence Berkeley National Laboratory, University of California, M/S 90-3058, 1 Cyclotron Road, Berkeley, CA 94720, 510/486-4508, fax 510/486-5394, RDMcLaughlin@lbl.gov. The latest, most engaging research.

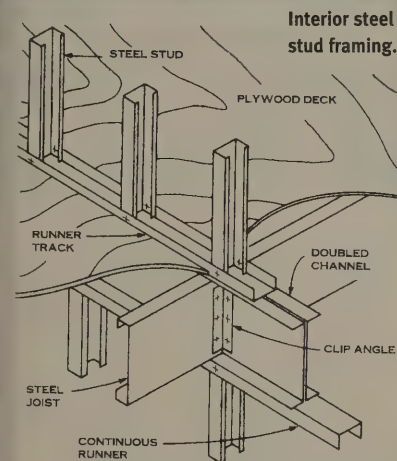
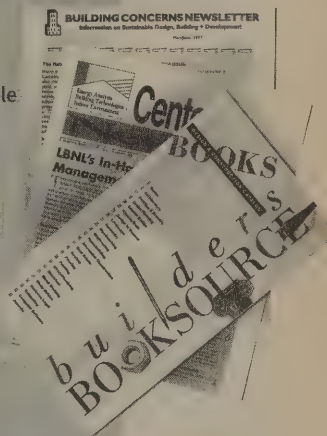
Interior Concerns Newsletter

131 West Blithedale Avenue, Mill Valley, CA 94941, 415/389-8049, vschomer@interiorconcerns.org, www.interiorconcerns.org.

Bimonthly on newest environmental products, projects, issues, and industry changes—it's a great regional directory for sustainable design.

Builders Booksource Design and Construction Catalog. 1817 Fourth Street, Berkeley, CA 94710, 800/843-2028, 510/845-6874, booksite@earthlink.net, www.buildersbooksource.com.

One-stop, superior bookstore.



Interior steel stud framing.

“When designing a building that will have a rainwater harvesting system, uncoated stainless steel and factory-enameled galvanized steel roofing are the safest options. With any metal coating, ask the manufacturer whether the coating contains heavy metals (red paint

used on metal often contained lead in the past). Avoid porous and rough roof surfaces because they collect contaminants more easily. —EBN

Studs: Wood and Steel

Wood-to-Steel Fastening System

A pneumatic device for attaching wood sheathing to steel studs with 250-nail magazines.

Impulse Compact Nail

A mere trigger-pull will inspire this cordless, hose-less device to drive 2-inch to 3 1/4-inch, magazine-fed nails for wood studs. With no hammer to swing or blows to withstand, the operator will likely retain a useful elbow



upon which to joggle a grandchild when that time comes. This compact model is lighter and cheaper than its industrial cousins, and is thoughtfully sized to fit between standard wall studs and into odd nooks. It's not entirely benign, though—the work is done by exploding fuel sucked from disposable butane cans and ignited by a disposable battery, with all that implies. What are speed and an elbow worth to you? —JB

Best for working on your own home and other odd jobs. Commercial compressor-driven nail guns are best for workers on job sites. —PW

Both from Paslode, 888 Forest Edge Drive, Vernon Hills, IL 60061-3105, 800/323-1303.

Scientific Certification Systems

1939 Harrison Street, Suite 400, Oakland, CA 94612, 510/832-1415, fax 510/832-0359.

SCS established its Forest Conservation Program to pinpoint the best managed forests—those that provide sustainable timber resources as well as ecologically viable woodland. A detailed list of approved companies is available.

American Iron and Steel Industries

1101 17th Street NW, Suite 1300, Washington, DC 20036-4700, 202/452-7100, fax 202/463-6573.

HL Stud Corporation 2000 W. Henderson Road, Suite 395, Columbus, Ohio 43220, 800/457-8837, 614/451-8100, fax 614/451-6621.

HL's non-load-bearing and load-bearing studs and floor joists are 30-50% lighter than wood. Their steel framing system is made from 70% auto salvage recycled steel.

SmartWood

Rainforest Alliance, 65 Bleecker St., 6th Floor, New York, NY 10012, 212/677-1900, canopy@ra.org.

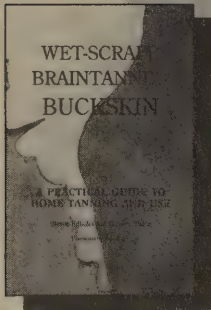
Provides a comprehensive list of “certified” sustainable timber suppliers.

TOOL KIT

Wet-Scrape Braintanned Buckskin
A Practical Guide to Home Tanning and Use

Steven Edholm and Tamara Wilder.
1997; 332 pp. \$17.95 (\$20.95 postpaid),
Paleotechnics, PO Box 876, Boonville,
CA 95415.

Buckskin. The usefulness of its strength and durability, the allure of its aesthetic quality. For those of us without moral qualms about using animal products, it is a remarkable material. Unfortunately, buckskin tends to be incredibly pricey. But production of this versatile and desirable material is not tricky nor mysterious. You can make it for virtually nothing in materials, and if you are willing to supply the work, this book will provide you with the understanding of the techniques, tools, and principles



Above right: Working the edges of a skin, held down with a foot so that both hands can be used. A clean tarp or sheet is laid out to keep the hide from getting dirty.

that will transform a raw hide into supple buckskin. From obtaining hides to uses of the finished product, it has sections on skinning, composting waste, construction of leather clothing, utilization of by-products, and a host of related topics. Truly staggering.

The project of home tanning is not for the squeamish. You will get your hands dirty. But this serves to keep you aware of exactly where leather comes from, and you'll probably find your appreciation for the material and your respect for the animals that supply it greatly increased. —Rob Thompson

Skinning tools. Sharpening steel, gambrel hook, whetstones, and selected knives (the quarter shows relative size).



“There is a difference in nomenclature between hides and skins: hides being from large animals like cows and buffalo and skins being from, say, deer, goats, pronghorn, and other smaller creatures. We just wanted to mention this so that people who are really hip to dermal terminology won't think that we don't know what we're talking about when we use the two terms interchangeably.

The character of skin varies with the change of seasons: i.e. thickness, depth of hair roots, and depth of vein tracks (pathways on the flesh side of the



The Tanning Spirit
Brain Tanned Buckskin (video)

Melvin Beattie. 1990; 45 min. \$30,
PO Box 9736, Helena, MT 59604,
406/458-5493.

“Very much recommended” by the authors of *Wet-Scrape Braintanned Buckskin*, this video taps into Beattie's forty-five years of experience. He asks you to call him if there's anything that needs clarifying, but between Edholm and Wilder's book and this video, there probably won't be such a need.



skin in which blood vessels lie). Our deer seasons (late summer and early fall) seem to favor desirable skin characteristics. We do get more tenacious, and sometimes impossible to remove, hair roots than most people that we know, but this is merely cosmetic. Some friends in the mountainous West have lamented that the deer season is too late there and that the vein tracks run so deeply into the skin that they often tear open or wear through prematurely with use. We haven't really gotten this whole thing figured out and suspect that it varies greatly in different areas anyhow. Barring road kills and other less-usual circumstances, you will just have to deal with what your local hunting season dishes out to you.

“The membrane is a very indistinct layer of tissue with no definite end; therefore, there is always some left on the skin. If too much is left, it will make the flesh side look ratty. Also, if membrany skins are made into clothing, the pieces of membrane will eventually form up into little scratchy balls like on an old synthetic blanket.

Incra Rules

\$16.95-\$59.95, Woodworker's Supply, Inc.
5604 Alameda Place, NE, Albuquerque,
NM, 87113-2100, 800/645-9292.

Even young beady-eyes have problems making a pencil mark at exactly 2 and 3/32" from the edge of the board. These clever rulers make such precision laughably easy: at each increment there's a tiny perforation to receive a standard 0.5mm mechanical pencil point or your scribe's tiny fang. This uncommon convenience comes in three handy incarnations: bendy flexible, T-rule (that hooks over the edge of a surface, and provides 64ths, too), and my favorite, the rigid edge-wrapper that facilitates around-the-corner measurements. There's also a matching protractor. None are cheap, but great stuff rarely is.

Note that these commendable devices cannot withstand bashing around in a toolbox. I advise giving them their own custom home or sheath. —J. Baldwin



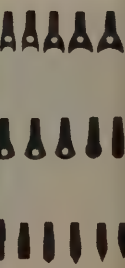
Profile Sander

\$129, Porter-Cable Corp., PO Box 2468,
Jackson, TN 58391-2468, 800/487-8665.

A dying woodworker showed me how to wrap a piece of sandpaper around a wad of playing cards to make a sanding block that would adjust itself to fit strange shapes. That clever ploy helped, but sanding remained a saint's task, loved only by those who find virtue in needless toil. Porter-Cable's **Profile Sander** brings speedy smoothing to impatient moderns who don't mind paying for the luxury. An eclectic



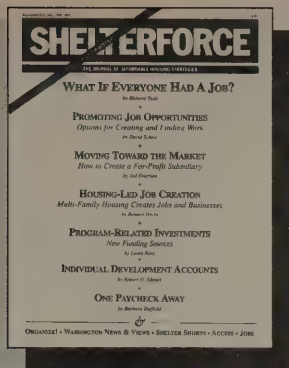
squad of tips bestows a buzzy, abrasive caress to most any contour. —JB



Shelterforce
The Journal of Affordable
Housing Strategies

Harold Simon, Editor. \$30/\$18
(six issues), PO Box 3000,
Denville, NJ 07834, 201/678-
3110, fax 201/678-0014.

The National Housing
Institute wants everyone
to have decent, affordable
housing. Their magazine,
Shelterforce, alternately
enrages and inspires as it dishes
the dirt and the remedy. Let's face it, most
of us deplore the situation, but few of us
have the time to deal with it even if we
knew what to do. It's good to know that
folks are organizing around this cause.
—J. Baldwin (who lives in a low-rent
chicken coop)



in the top 5 percent of
income. In 1988, the
federal government
spent about \$35 billion,
through the mortgage
deduction, on housing
subsidies for families
making \$50,000 or
more. At the same time,
it spent only \$10 billion,
in all the government
housing programs now
under attack, on families making less
than \$10,000 a year. —SHELTERFORCE

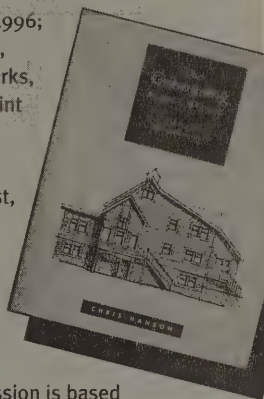
“Standardizing units may sound
awful, and sticking with standardization,
even when you agree to it, will be hard.
But there are great benefits for the com-
munity. Develop reasonable and practi-
cal design alternatives during the design
process. Design for flexibility and adapt-
ability. Show individuals how to change
their private units after they have moved
in. Live with your private unit design and
then customize your unit after you take
possession. Believe it or not, it will cost
all of you less. And it won't damage the
community. —COHOUSING HANDBOOK

The CoHousing Handbook
Building a Place for Community

Chris Hanson. 1996;
278 pp. \$24.95,
Hartley and Marks,
PO Box 147, Point
Roberts, WA,
98281.

Oh boy. At last,
an experienced
how-to
cohousing
book adjust-
ed to North
American reali-
ties. The discussion is based
on real examples, successful and other-
wise. The projects are presented along
with an easily read, detailed account of
how and why they happened or didn't. The
entire cast of characters is here: dreamers,
hoppers, realtors, bankers, inspectors, envi-
ronmentalists, pet lovers, and pet haters.
Among the protagonists is probably some-
body much like yourself. Guidebooks don't
come much better.

Please remember two other resources
reviewed in *MWEC*. **The CoHousing
Network** (510/486-2656) and their book
and quarterly, both called **CoHousing**, for
all the news; and the **CoHousing Company**
(510/549-9980), a great consulting and
development company dedicated to build-
ing cohousing communities. —JB



Renewables Are Ready
People Creating Renewable
Energy Solutions

Nancy Cole and P.J. Skerrett.
239 pp. \$19.95, Chelsea Green
Publishing Co., PO Box 428,
White River Junction, VT 05001,
802/295-6300, fax 802/295-6444.

We've come a long way since a handful
of "counterculture" experimenters and
lonely solar engineers tried all sorts of
ideas, many of which didn't
work well. Now, the only
obstacle to renewable
designs is inertia. The many
diverse examples in this
book include hot water for a
jail, photovoltaic art, district
heating, and moving an
entire town out of a flood
plain. No secrets—the strate-
gies that got all that done are
here too. Useful appendices
review the choices, the phys-
ical principles involved, and
some of the resources (includ-
ing phone numbers) you'll need. —JB



“Energy Rated Homes of Vermont
uses this example to explain the bene-
fits: A one-and-a-half-story home that
sold in 1991 for \$88,000 needed
\$4,000 worth of work to change it from
a two-star to a four-star home. The own-
ers financed the
work through
their thirty-year
mortgage at 10
percent interest,
adding \$37 to
their monthly pay-
ments. But the
improvements
saved them \$119 a
month in energy
bills, a net savings
of \$984 a year.

Left: Architect
Michael
Reynolds calls
these struc-
tures “Earth-
ships.” He
thinks in
terms of
earth-packed
tires—“rub-
ber-encased
adobe bricks”
—and empty
soft-drink or
beer cans
embedded in
a cement
matrix.
—RENEWABLES
ARE READY



“HUD [the federal department of
Housing and Urban Development] esti-
mated that these changes would deprive
1.3 million families of rental subsidies
after seven years. At a time when
Republicans are also planning to slash
welfare and reduce earned-income tax
credit for the working poor—whose
incomes are already shrinking—this is a
blueprint for rapidly escalating impover-
ishment and intensification of the
nation's housing crisis.

Yet Congress has raised little discus-
sion of the nation's biggest housing sub-
sidy program: the home mortgage inter-
est deduction. About 44 percent of the
home mortgage subsidy goes to families

Tilley Two

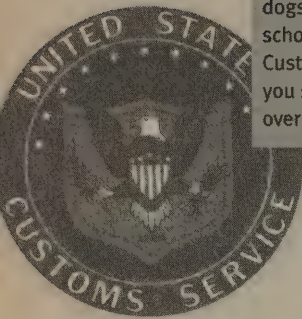
Catalog free from Tilley Endurables, Inc.
900 Don Mills Road, Don Mills, Ontario
M3C 1V8, Canada; 800/338-2797 or
716/675-8650, fax 716/675-8655.

(Back in *WER* No. 84) I sang the praises
of this versatile, unblowoffable (without
squeezing your head), rain-deflecting,
padded, floatable, eyeshadin', way cool
hat. It carries a lifetime guarantee against
wearing out. Mine wore out, under six
years of continuous assault by California
Red Dust and my notoriously acidic emana-
tions. Figuring that the warranty referred to
my lifetime rather
than the hat's, I
mailed back the
remains for a verdict.
I received a new hat
forthwith, and an
admonition to wash
it oftener. Would I
buy another? Don't
need to. Heh. —JB



Customs Canines

The US Customs Service produces these trading cards to honor and publicize its drug-interdiction canine operatives. (No assassinated "sniffers" included.) Officers distribute the cards at the border and shows and demonstrations featuring the dogs. To request a demonstration for a school or community group, call your local Customs Service office; maybe they'll send you some cards just for asking. There are over 100!



TROY
U.S. CUSTOMS - MIAMI, FL

Tattoo #: OC-99
Breed: Black Labrador
Age: 4
Weight: 65
Year Started in Customs: 1996
Prior Ports Assigned to: Not available

Largest or Most Notable Seizure: In the first month at the Port of Miami, Troy made two seizures with the most significant being 16,500 pounds of marijuana concealed in barrels of frozen fruit pulp which had arrived on a cargo ship from Columbia.

SPUD
U.S. CUSTOMS - BROWNSVILLE, TEXAS

Tattoo #: c-685
Breed: Golden Retriever
Age: 4
Weight: 65 Pounds
Year Started in Customs: 1990
Prior Ports Assigned to: Not Available

Largest or Most Notable Seizure: Spud alerted on the roof of a van that contained 133 pounds of marijuana at the Brownsville port of entry. Spud's positive alert on two vehicle fuel tanks resulted in two marijuana seizures; one weighed 29 pounds. The second seizure weighed thirty pounds.

**YOU CAN HELP SPUD
STOP DRUG SMUGGLING
TO REPORT SUSPICIOUS ACTIVITIES,
CALL 1-800-BE-ALERT**

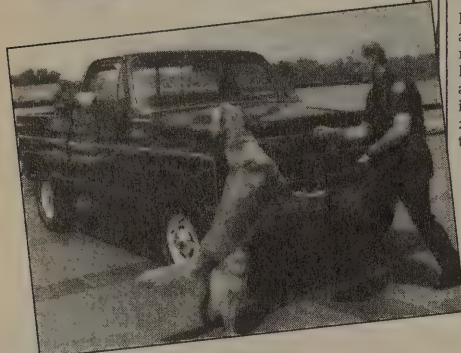
MASTER
U.S. CUSTOMS - SAN YSIDRO, CA

Tattoo #: c-720
Breed: Labrador Retriever
Age: 8 1/2
Weight: 94 Pounds
Year Started in Customs: 1990
Prior Ports Assigned to: 1990 Los Angeles
Largest or Most Notable Seizure: 5 pounds Asian white heroin, secreted inside pictures. Eighty-five pounds cocaine in vehicle awaiting entry to San Ysidro Port of Entry. 693 pounds marijuana in vehicle awaiting entry to San Ysidro Port of Entry. Master was responsible for over 100 seizures from June 1994 to 31 May 1995. The street value of the narcotics seized was in excess of \$38,000,000.

**YOU CAN HELP MASTER
STOP DRUG SMUGGLING
TO REPORT SUSPICIOUS ACTIVITIES,
CALL 1-800-BE-ALERT**

CAN HELP TROY
STOP DRUG SMUGGLING
CALL 1-800-BE-ALERT

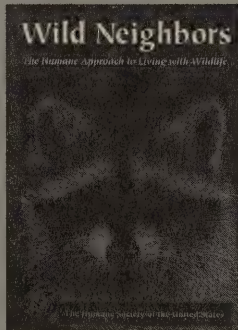
PROGRESO
SOUTHWEST REGION



Wild Neighbors

The Humane Approach to Living with Wildlife
John Hadidian, Guy R. Lodge, and John W. Grandy, Eds. 1997; 253 pp. \$16.95, Fulcrum Publishing.

Americans have found that "wild" animals near home are as engrossing as TV. Many cities have encouraged the return of deer to suburbia, raccoons to downtowns. The birdseed business skyrockets. Families have become gentler and more accepting of urban wildlife mischief. If you want to teach that tolerance is fun, try wild neighbors.



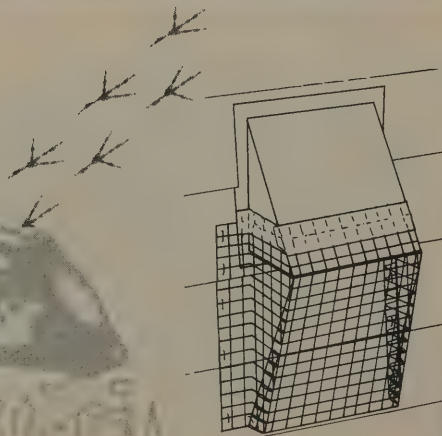
Wild Neighbors is the best guide so far to calming over-reaction. The chapter on each pesty neighbor has a summary of the problem and solutions (tolerance, exclusion, scare devices, repellents, habitat management, capture).

Its gaps are a bit irritating: Pack rats, the main bane and focus of many a western home, do not appear. Nor are the special perforators (acorn woodpeckers). Starlings are "controlled" (killed) in many locations because they steal the nesting holes of native birds. —PW

Starlings were introduced into North America in 1890, when an enterprising New Yorker named Eugene Schieffelin had about a hundred of these birds brought over from England to be released into Central Park. It seems Mr. Schieffelin and a small group of like-minded friends had a passionate interest in introducing into this country all of the animals mentioned in the works of Shakespeare.

From the initial hundred, their population numbers are in the hundreds of millions now. They outcompete many native birds and alter the balance of nature so much that we really have no idea what it might be like without them.

Dryer vents or exhaust vents from kitchen hoods are often invaded by starlings. Here, a rigid heavy-gauge hardware cloth has been fitted around a dryer vent, leaving the bottom open (about 1/2-inch slot) so that lint can escape.

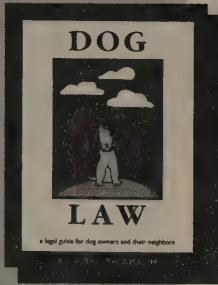


Dog Law

Mary Randolph. 1997; 300 pp. \$14.95, Nolo Press.

The last time my neighbor's two marauding Rottweilers rampaged through my yard, they upended the garbage can, tried to eat my Pug, and left multiple organic calling cards. I had asked the owners several times to control their dogs, but to no avail. I decided enough was enough, and filed a written complaint with the local animal control department. As it turns out, so did several other people on my block. The Rottweilers are now walked on-leash, and all is well.

Dog Law is a handy reference for anyone with concerns about their own dog, or someone else's. So you want to keep thirty-seven dogs in your backyard? You might want to bone up on the city code regarding such an endeavor. Does your pooch keep getting picked up without ID? Try a microchip. In several passages, the author reveals a personal disdain for animal control departments that indicates a possible inspiration for the book, but for the most part, the information contained in **Dog Law** is useful and offers a fairly comprehensive overview of the legal angles related to canine companionship. The moral of the story: there are no bad dogs, only bad owners. Spay and neuter your pets! —Jason Willett



Ain't Nobody's Business If You Do The Absurdity of Consensual Crime in a Free Society

Peter McWilliams. 1996; 692 pp. \$9.95, Prelude Press. Also available for downloading at <http://www.mcwilliams.com>.

Discussions over the wherefores and whys of governance frequently turn into heated debates over one substantive issue: to what extent is the government, acting on behalf of the public good, justified in assuming the *in loco parentis* role in the lives of private citizens?

Peter McWilliams answers a resounding Never! Mustering an impressive series of arguments that range from constitutional deconstruction to Bible study to cost/benefit analysis, McWilliams has written what could serve as a libertarian holy book, although its style is more pop self-help colloquial than King James.

In parts, **Nobody's Business** shares the same tendency to confuse rant with logic as the society it criticizes, particularly in the later parts of the book when a discussion of drug laws spins off into a stern lecture on cigarette smoking, caffeine quaffing, and demon alcohol. And one never quite loses the feeling that McWilliams is preaching to the converted. Still the book is worthwhile reading. Victimless crimes—however much these behaviors may deviate from social norms—have become the frontier along which the battle for individual civil rights is continually being fought. —Patrizia DiLucchio

Those who study such things and make professional guesses ("expert opinions") estimate that between 4 and 6 million of the 15 million arrests each year are for consensual activities. Let's take the lower end of that range and call it 4 million. We know that in 1994, 1,350,000 of these 4 million arrests were for "drug offenses." We also know that the government spent \$29 billion on those 1.35 million drug arrests. Therefore, we can conservatively estimate that it spends at least another \$10 billion a year on the other million consensual crime arrests, trials and incarcerations.

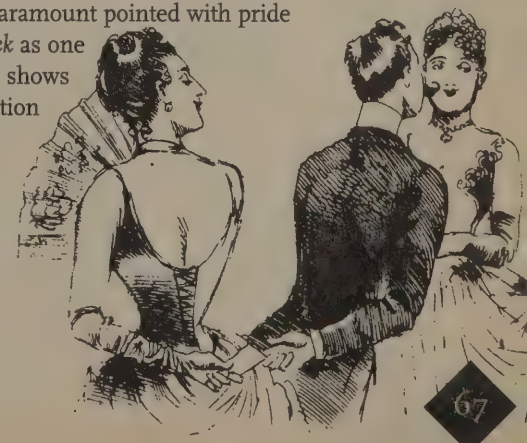
Adding the \$3 billion of foreign aid and the \$8 billion spent by the Coast

Guard and the military on consensual crimes, it's fair to say that we spend \$50 billion a year prohibiting consensual crimes. In fact, it's almost certainly an understatement.

Gene Roddenberry told me that while he was creating *Star Trek*, the network (NBC) and the production company (Paramount) put enormous pressure on him to include cigarettes on the Starship *Enterprise*. Roddenberry pointed out that, considering the health risks known about cigarettes even in 1966, no one would be smoking by star-date 1513.1 (circa A.D. 2264).

The network and studio executives used both pressure and persuasion. They tried to get Roddenberry enthused about how cigarettes might look in the twenty-third century. Maybe they would be square instead of round; perhaps they would come in colors; per-

haps cigarettes would *light themselves!* Roddenberry's creative juices were not stimulated. Finally, the executives gave him an ultimatum: either the Starship *Enterprise* would officially be declared a Smoking Zone, or Roddenberry's other radical idea—to have a woman as an officer of the *Enterprise* crew—would be abandoned. The executives were clever in offering the choice: Roddenberry's wife was already cast to play the female officer. After quite a bit of soul-searching, Roddenberry came to the only conclusion he could: both cigarettes and his wife did not get an intergalactic boarding pass. The irony was that, in later years, when smoking was less than fashionable, Paramount pointed with pride to *Star Trek* as one of the few shows in syndication that had none of those distasteful cigarettes.

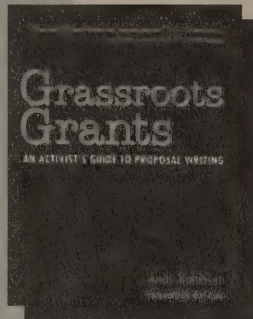


Grassroots Grants

An Activist's Guide to Proposal Writing

Andy Robinson. 1996; 194 pp. \$25.

This is a primer, and a good one, for any sort of group prospecting funds from the world of charitable foundations and corporations. The techniques discussed here apply just as well to the fledgling symphony orchestra as to a consortium of collective day care facilities for at-risk inner-city children of single teen moms. The author walks the reader through the process of sorting a group's wishes and needs into specific projects. He provides good step-by-step instructions and examples from the grassroots community for converting these project goals into the sort of grant proposal that might actually be funded. One hopes that in future editions of this book Robinson will discuss the various Internal Revenue Service tax-exempt categories which are almost always the base requirement for any organization seeking funding from foundations. —J.D. Smith



“If you choose to seek general support grants, you'll have the best chance with a current or past funder who already knows and respects your work. Except for very small grants, it's rare to

receive general support on your first approach to a grantmaker. To improve your odds, you might try to package your general proposal as program or project support. Ask yourself questions such as, “If we had some more money to spend on developing the capacity of our

organization—staff time, equipment time, board development, fundraising and so forth—how would we spend it?” Explore how these pieces might fit together, then write it up as a project proposal with a provocative title. Remember, the tighter the focus, the better your chances of getting funded.

The Grassroots Fundraising Journal

Kim Klein, Editor. \$25/year (six issues).

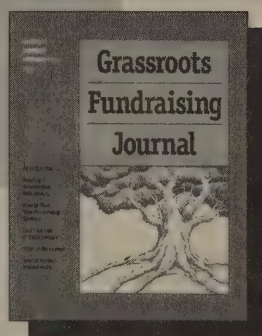
The Board of Directors

Kim Klein, Editor. 1997; 31 pp. \$10.

Getting Major Gifts

Kim Klein, Editor. 1996; 39 pp. \$10.

The *Journal*—fifteen years old and counting—and these two “greatest hits” collections from it contain nuts-and-bolts ideas for, among others, “Getting Over the Fear of Asking,” “Board Members: How Hard Should They Work?” and “Fifty-Six Ways Board Members Can Raise \$500.” Subscribe or spend an hour with either of these books and you'll find several specific ideas you can use right away. —Andy Robinson



“In a study of New York City panhandlers the panhandlers that asked for a specific amount, or for a specific purpose (“So that I can get on the subway”) were more likely to get something than those who asked for the vague “spare change.” The same is true

for larger gifts. “We need some money for our important work and we would like you to help” is too vague. The prospect doesn't know how much money is needed, or what an appropriate gift would be. Is \$50 too cheap? Is \$1,000 ostentatious? Is there a plan for the use of the money? Use an approach of, “We need \$10,000 for our community organizing project, and we hope to raise \$5,000 of that in gifts of \$50-\$500. Can you help?” Or, “We want to raise \$15,000 in gifts of \$200-\$1,000. We have already received \$5,000 from ten individuals, and hope that

you can give \$500.” It is much more convincing and specific. —GETTING MAJOR GIFTS

Fundraising for Social Change

Kim Klein. 1994; 351 pp. \$25.

Kim Klein is one of the best-known and most respected fundraising trainers in the world. In a field infected with jargon, she speaks (and writes) in simple, upbeat sentences that even novices can understand.

Kim's book delivers hands-on advice for grassroots groups (which she defines as organizations with budgets less than \$500,000). It focuses on community-based fundraising—rather than foundations and corporations, which provide only twelve percent of the money available to non-profits—and includes particularly good sections on mailing strategies and building a major donor program. If you need to raise money so you can raise hell more effectively, this is a terrific tool. —Andy Robinson



“It is clear to me from years of working with nonprofit organizations that you cannot save time. You can put time in on the front end, planning, thinking things through and doing things right, or you can “save time” on the front end and put it in at the back end, clearing up the mess, handling disgruntled donors, and having to do more fundraising because what you have done did not raise the money you need.

“Fears about asking for money fall into three categories:

- Those that will almost never happen (“The person will hit me”; “I'll die of a heart attack during the solicitation”).
- Those that could be avoided by training and preparation (“I won't know my facts, the person will think I'm an idiot”).
- Those that definitely will happen sometimes, maybe as much as half the time (“The person will say no”).

“As the asker, you have to remember that, above all, the person being asked has the right to say no to a request without offering a reason. Most of the time you will not know exactly why your request was turned down. Your job is not to worry about why this prospect said no, but to go on, undaunted, to the next prospect.

Everything on this page is available from Chardon Press (call for information on bulk rates; add \$2.00 per book for postage) PO Box 11607, Berkeley, CA 94712, 510/704-8714, fax 510/649-7913, Chardn@aol.com.

The Multiverse

Not One but an **INFLATING**/deflating *Rhythhythmic Diversity* of Many Universes

Interview with
Sir Martin Rees
and excerpts
from his new
book: *Before
the Beginning*

What is conventionally called “the universe” could be just one member of an ensemble. Countless other universes may exist in which the laws are different. This new concept of a “multiverse” is, potentially, as drastic an enlargement of our cosmic perspective as the shift from pre-Copernican ideas to the realization that the Earth

is orbiting a typical star on the edge of the Milky Way, itself just one galaxy among countless others.

The multiverse could encompass all possible values of fundamental constants [see box]. I think cosmologists are starting, by better observations, to pin down the key numbers describing our universe. At the same time, physicists will soon be able to tell us which of these numbers are fixed by some underlying theory of the multiverse, and which are, in some sense, “arbitrary” outcomes of how our particular universe cooled down. The latter numbers would not be the same in other universes. The universe in which we’ve emerged belongs to the “unusual” subset that permits complexity and consciousness to develop. Once we accept this, various apparently special features of our universe—those once adduced as evidence for Providence or design—occasion no surprise.

In addition, other universes may follow life cycles of very different durations: some, like ours, may expand for much more than ten billion years; others may be “stillborn” because they recollapse after a brief existence, or because the physical laws governing them aren’t rich enough to permit complex consequences. In some there could be no gravity; or gravity could be overwhelmed by the repulsive effect of a cosmological constant. Some could always be so dense that everything stayed close to equilibrium, with the same temperature everywhere. Some could even have a different number of dimensions from our own.

By mapping and exploring our universe, using

Constants: Unique to Our Universe? or, to the Whole Multiverse?

Speed of Light	299,792,460 m/sec
Planck’s constant ¹	6.626 075 x 10 ⁻³⁴ J-sec
Gravitational constant	6.672 59 x 10 ⁻¹¹ m ³ /kg- sec ²
Avogadro’s number ²	6.022 136 x 10 ²³ mol/mole
Classical electron radius	2.817 914 x 10 ⁻¹⁵ m
Critical density of the universe	1.9 x 10 ⁻²⁶ kg/m ³

1. The ratio of the energy of a photon to its radius

2. The number of molecules in a gram-molecular weight of a substance

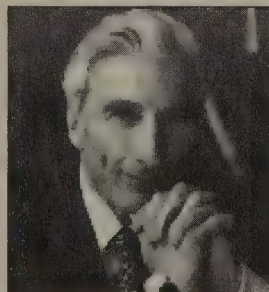
all the techniques of astronomy, we are coming to understand—to a degree that even a decade ago would have seemed astonishing—our cosmic habitat. We have intimations of other universes, and perhaps . . . we can infer the scope and limits of a final theory even if we are still far from reaching it—even if, indeed, it eludes our intellectual grasp forever.

If the universe isn’t everything, what is it?

We need to specify carefully (especially when talking to philosophers) what we mean by “the universe.” We must distinguish three things:

(i) What we can actually observe—i.e., what lies within the horizon of present telescopes.

(ii) The larger domain that may, one day in the future, be observable, or at least in causal contact with us (or our remote descendants).



The “environment” for the multiverse is everything, including the cosmos and

our mental capacity to conceive it. There are theologians and astronomers who want the divine cosmos and the physical cosmos to merge into the grand One. Individuals in both professions speculate wildly and with much hubris. Sir Martin Rees, Professor of Astrophysics at Cambridge University, Royal Society Research Professor and Great Britain’s Astronomer

Royal, has been humble, personal, and exquisitely honest about what’s known, what might be known and what is perhaps unknowable. Relax from the astro-cosmo-deist hype, curl up and join his erudite space/time probe. We thank him for his generous email dialoging, which resulted in this article. —PW

Eternity: Life in Love

The old-fashioned Big Bang theory put a border on the universe—a kind of ellip-

soid with a 15-billion-light-year radius. This used to be considered the majority of the

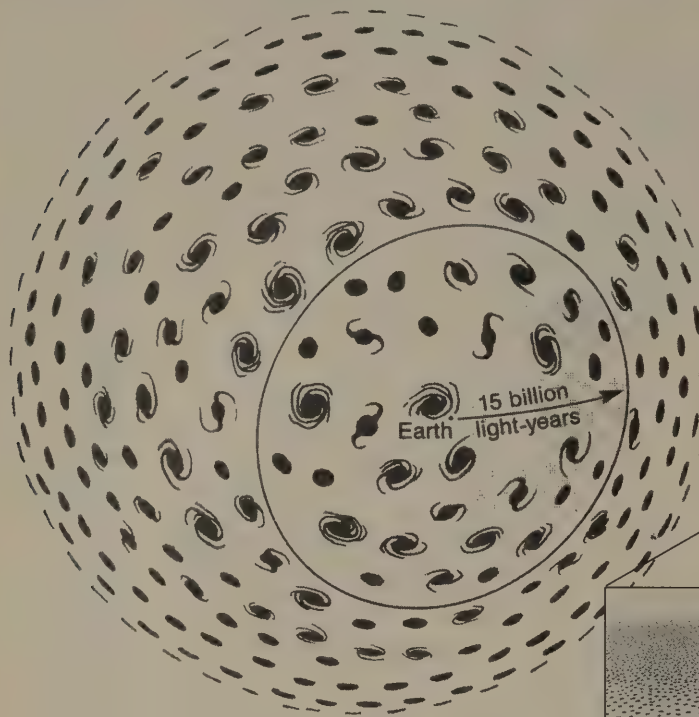
entire universe (of which we thought there was only one). The inflationary universe

theory has humbled us once again. A multiverse could include many probable

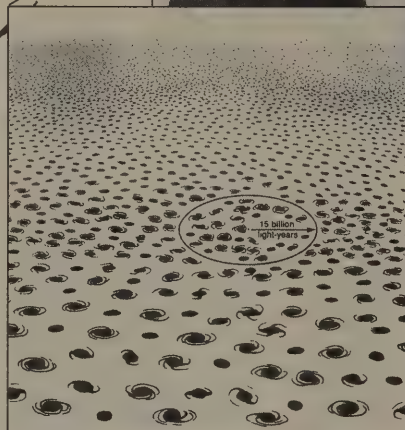
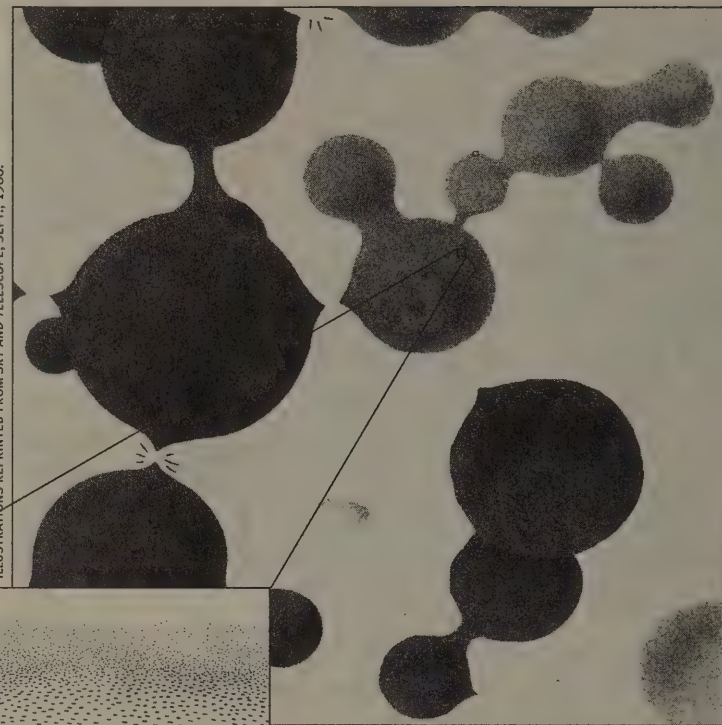
Big Bangs and a grand diversity of universes with varied constants set at the moment

they were “pinched” off. No one knows what constants might be constant in the

multiverse and which ones are just the local personalities of a local universe.



ILLUSTRATIONS REPRINTED FROM SKY AND TELESCOPE, SEPT., 1988.



(iii) “Everything there is”—which includes all other possible universes, though these may never be observable, even in principle (and have different laws, dimensions, etc.). This is what I’ve called the “multiverse.”

There are two ways we can gain circumstantial evidence about whether other universes exist:

(i) When we understand the early stages of the “big bang” better, it may turn out (indeed I strongly suspect it will) that the theory would predict a whole succession (or even an infinite ensemble) of separate bangs, each sprouting into a separate universe.

(ii) The features of our universe that make it seem specially “tuned” for life can, I believe, be best explained by supposing that there is a whole ensemble of universes, governed by different laws. It is then of course not surprising to find one member of the ensemble that fits any requirement.

As our universe cooled, its specific mix of energy and radiation, even perhaps the number of dimensions in its space, may have arisen as “accidentally” as the patterns in the ice when a lake freezes. The physical laws were themselves “laid down” in the big bang.

Our universe, and the laws governing it, had to

be (in a well-defined sense) rather special to allow our emergence. Stars had to form; the nuclear furnaces that keep them shining had to transmute pristine hydrogen into carbon, oxygen, and iron atoms; a stable environment and vast spans of space and time were prerequisites for the complexities of life on Earth.

Life in other universes?

It’s hard enough to speculate about what life might exist elsewhere in our own universe, let alone in others where the physical laws are different! The basic laws allow an immense range of complex structures, which we can’t necessarily yet envisage. Science fiction authors are the best at this, of course, and we can get more stimulus from them than from most scientists. Our universe is still near the beginning of its cycle—we are certainly not the culmination of evolution. (I also make the point, which is unpopular with some people, that, though SETI [Search for Extra-Terrestrial Intelligence] projects are worthwhile, I rather hope that life is now unique to our Earth. This may seem at first sight to make life an irrelevant fluke in our vast universe. But life “seeded” from Earth could spread through the galaxy and beyond, making our tiny Earth central to the cosmic scheme of things.) I emphasize that biology is a harder subject than astronomy—

astronomers deal with things that are big, but not specially complex. That's why it isn't presumptuous to aspire to understand them. A frog poses a more daunting scientific challenge than a star.

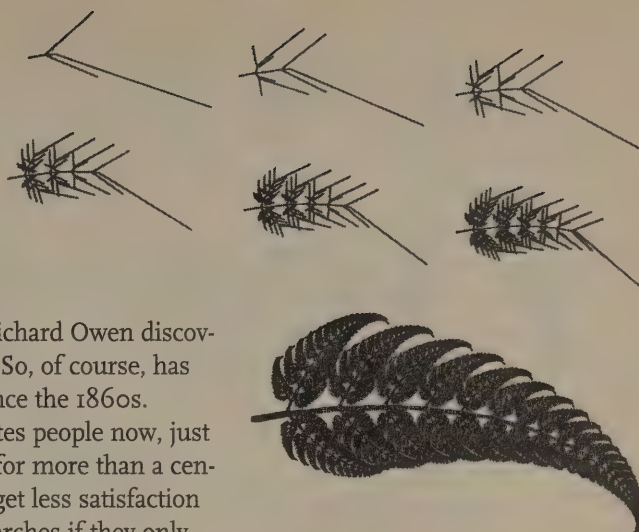
In the first and last chapters of my book where I briefly allude to the implications of a SETI detection, I speculate about whether there might be "superintelligences" who could visualise the Mandelbrot set as easily as we visualise a circle, and who could perhaps infer the existence of universes (e.g., with extra dimensions) too complex even for us to imagine. I like the analogy with the observer in a rowboat in the middle of an ocean. The sea may seem to stretch uniformly to the horizon, but there may be continents, "dragons," etc., far beyond.

Is cosmology relevant?

I think the concept of the multiverse erodes any basis there might have been for the theological "argument from design" [that the Universe is so perfect and complex that it must have a creator]. The concept of the multiverse could allow multiple universes of various levels of perfection or complexity. However, the argument from design is not itself taken seriously by many theologians. While science raises problems for certain "literal" beliefs, I don't think it has any further relevance to one's religious attitudes. I mention briefly in the book that, just as Newton's contemporaries reacted differently to nature, so do present-day scientists. If being a scientist teaches me anything, it is that even a single atom is tough to understand. That makes me skeptical of anyone who claims more than an incomplete and metaphorical understanding of any deep aspect of reality.

Cosmology is of no day-to-day significance. But people have always been fascinated by "origins." Dinosaurs have been high in the popularity charts ever since Richard Owen discovered them in 1841. So, of course, has Darwinism ever since the 1860s. Cosmology fascinates people now, just as Darwinism has for more than a century. (I'd certainly get less satisfaction from my own researches if they only interested a few other specialists.)

I don't think modern cosmology carries any real message relevant to ethics. Cosmologists can hold almost any faith, or none. They may, however, have a special "ecological" perspective. The intricate biosphere, of which we're part, has taken several billion years to evolve. Our Earth is a speck in the universe. Planets are common, but those that harbor such complexity could be surpassingly rare, or even unique in those vast spaces. In terms of cosmic timespans, we're not yet at the half-way stage—we're still nearer to Darwin's "simple beginning" than to the endpoint of the evolutionary process. But it is collective human actions that will determine how, or even if, that process unfolds. Being mindful of these potentialities should deepen our commitment to understand our world, and conserve its web of life. ⊕



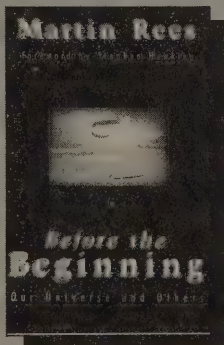
A fractal fern. Can you recognize the "fern" as a simple stick drawing repeatedly iterated at various scales?

Perhaps superintelligences in another universe could grasp this complexity as easily as we visualize a circle.

Before the Beginning Our Universe and Others

Martin Rees. 1997; 304 pp. \$25, Addison Wesley Longman.

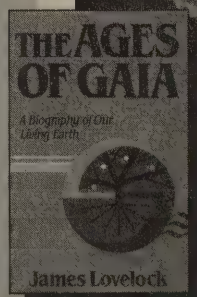
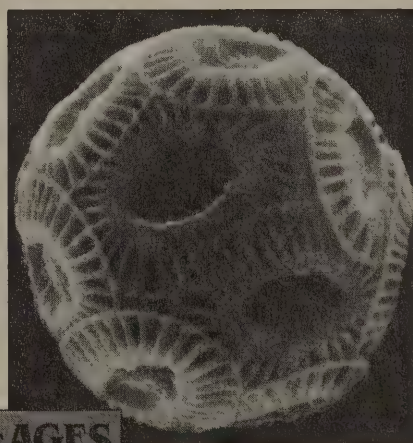
Before the Beginning presents an overview of the most significant findings and controversies in the cosmology of the last decade. Rees then offers his own musings, and an individual perspective, based on his research and interactions with most of the other leading cosmologists. Much of this interview developed from elaborations on passages from this witty, learned, and provocative book. —MKS



The Ages of Gaia

A Biography of Our Living Earth
James Lovelock, 1988; 252 pp. \$12, Norton.

I know we've reviewed *Ages* many times. But here it is again, because Sir Martin has brought you to Gaia's threshold. As earth-centric images became solar system became galaxy, and galaxies became universe, and universe becomes multiverse, only Gaian theory provides us with an awesome sense of worth-shape (worship) of this minuscule planetary body. Gaia now holds the same emotional tones that previous societies held for the "heavens" (however conceived), paying homage to intricately beautiful, somewhat mysterious complex patterns. The unifying picture of Gaian Earth hovers like an angel, tempting humans to be gentler and more caring with a wider sense of responsibility. Gaia has the moral persuasion once dished out by a more provident Universe. —PW



Emiliana huxleyii, known by her friends as mily. Blooms cover large areas of ocean; their presence powerfully affects the environment through their capacity to facilitate removal of carbon dioxide from the air and their production of dimethyl sulfide (which acts to nucleate clouds over the ocean).

“If birds can sing quartertones, why shouldn’t we play them?”

ERIC DOLPHY

the micro

Johnny Reinhard

There’s a new kid on the music scene, “microtonal music.” Well, maybe not so new, and perhaps not on your block, but clearly in the ascendancy.

Not a musical style *per se* (e.g., rock, jazz, classical), microtonal music results from a philosophical aesthetic of musical intervals. To begin with some brief definitions: An interval is the musical feel of the space (difference in pitch) between two notes. An octave is the interval between a note and a second note with half or twice its frequency—think of the first two notes of “Somewhere Over the Rainbow.” The diatonic scale (do-re-mi-fa-sol-la-si-do), the basis for the major and minor keys in Western music, progresses through seven notes

over the course of an octave. A semitone (essentially, half the interval between two consecutive tones on the diatonic scale) is the interval formed by the closest adjacent keys on a keyboard. A microtone is any of a number of notes between notes.

Western music composed during most of the last 500 years has largely used different temperaments (“tamperaments” with the sounds found in nature), which opened the way to modulating from key to key, but has rarely



GENESIS OF A MUSIC (SEE P. 74).

used microtones. Schools regularly teach that nature’s very precise series of overtones—notes with frequency ratios of $1/2$, $1/3$, etc.—is “out-of-tune,” as if pointing out an egregious flaw in nature. Until recently it was thought impossible to play microtones on traditional instruments (they fall between the keys on a conventionally-tuned piano, for instance), or simply to sing them.

This is not to say that we can’t—or don’t—hear microtones, even in the West. I will never forget that exquisite evening in 1979 when the proverbial light bulb lit above my head. I had discovered the archetypal example of commercial microtonality—the Oldsmobile car horn.

Taking my bassoon in hand, I played aloud the Oldsmobile car horn tune (D up to F quartersharp, down to A and back to F quartersharp). The tune was immediately recognizable to everyone standing around me, including Finnish and Japanese students who knew it from old movies.

Meantime, the microtonal tunings of many world musics are passports to experiencing different cultures. In Höömei overtone singing, mastered by Tibetans, Mongols, and virtuosic Tuvans (*Whole Earth* No. 90), individuals produce three or four notes simultaneously, forming further combination tones. Thai musicians practice seven-tone equal temperament. So, too, do the Puna of Panama, the Are’are of the North Solomon Islands, and numerous tribes in Cameroon and throughout Central Africa. Egypt uses quartertones, Iran practices “dasgah” (immutable tetrachords—the

Left: The Mazda Marimba. Twenty-four light bulbs with their viscera removed are arranged in four ascending rows. Tuning is very easy. If a sound is too flat for a desired tone, break small pieces off the shaft end with a pair of pliers, in order to sharpen. If a sound is too sharp, plastic tape may be wound around the shaft end, increasing the length, *ergo* flattening the sound.

Johnny Reinhard is a composer, conductor, and teacher. He is on the faculty at New York University and C.W. Post, Long Island. In June, 1996, he realized and conducted the premiere performance of Charles Ives’s *Universe Symphony* at Alice Tully Hall, Lincoln Center. He founded, and since 1981 has directed, the American Festival of Microtonal Music, Inc., 318 East 70th Street, Suite 5FW New York, NY 10021; 212-517-3550; fax 212-517-5495; www.echonyc.com/~jhh/AFMM.

onal wave

interval of the first two notes of "Here Comes the Bride"—with idiosyncratic innards). India favors raga, using seven-limit (compared with conventional Western five-limit) harmonics.

Though new intonational hierarchy is now being celebrated in global festivals, intrepid independents were always in evidence. Eric Dolphy asked, "If birds can sing quartertones, why shouldn't we play them?" Egyptian superstar Ou Kalsoum revolutionized the Arab world, first as a female star, and finally as the awesome master of intricacies of Arabic scales called "maqamat." Folk artist Odetta lovingly fashions and shapes her intervals of emotional power, each in an intuitively intended nook. Sinead O'Connor splits intervallic hairs when she sings "Nothing compares to you" through the use of syntonic comma (or $11/600$ ths of an octave) between the notes "to" and "you."

All styles are game for microtonal application. The track of the blues makes use of "blue" notes which are organic-sounding pitches off the diatonic scale. Much of rock (e.g., Jimi Hendrix) is microtonal, as is some of jazz and a slice of classical, and it runs through hip-hop. The punch of Appalachian harmonies, the bald-faced seeming impossibility of Inuit throatsinging, and the great female choruses of Bulgaria all stir the microtonal broth.

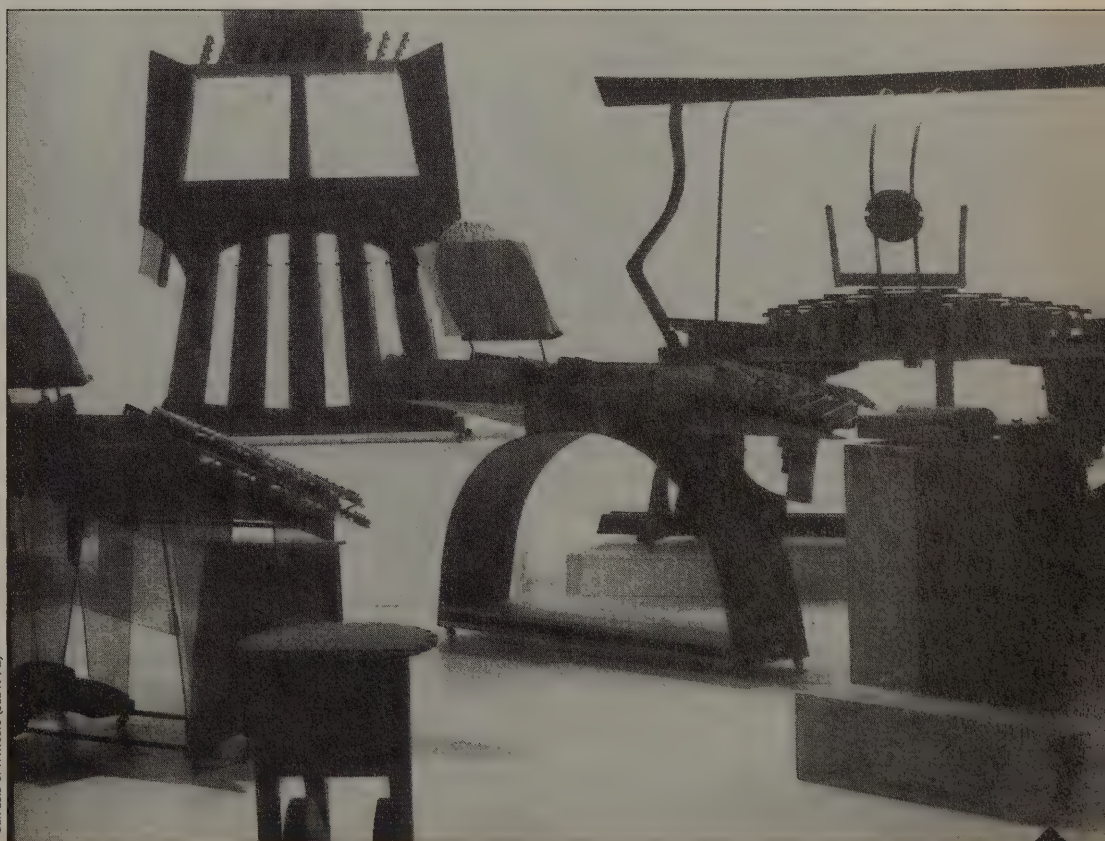
Microtonal ventures began in pre-history when Neolithic people first began to get a sense of control of nature's schemata. Playing via mathematical calculations with musical intervals, some imagined to be beyond human hearing, was a favorite pastime of the Sumerians. The first professional microtonal meet occurred on the island of Salamis when Thracian harpist

Timotheus ventured to the cave hideaway of Euripides, whose reputation for composing with quartertone genera was widespread.

Microtonal music has often existed at the edge of mainstream musical sensibilities. Timotheus sought out Euripides after being banished by a Spartan king for "polluting" music by adding extra strings to his harp. Nicolo Vincentino's Renaissance-period archichembalo (a harpsichord with an extended range, on which he played 31 distinct pitches per octave) caused a societal riot in Venice. Bach's tunings inspired debates in Berlin immediately after his death.

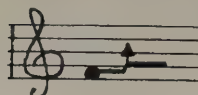
In the New World, Mexican Julian Carrillo coined the term "microtonal" in his 1895 monograph "Sonido Trece," which featured a ninety-six tones-per-octave scale. American pioneer Harry Partch (1900-1974) had a dream that led to an original music conceived as a monophonic fabric and culminated in a scale with forty-three unevenly spaced tones per octave. To achieve his dreams, he designed exquisite and beautiful instruments capable of playing his music (see *Genesis of a Music*, p. 74).

Assorted instruments built by Harry Partch. Center: Harmonic Canon III. Clockwise from left: Harmonic Canon I, New Kithara I, Quadrangularis Reversum, Mbira Bass Dyad.

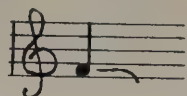


GENESIS OF A MUSIC (SEE P. 72)

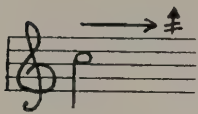
Ways to Indicate Microtones (from *Twentieth Century Microtonal Notation*)



Toru Takemitsu:
Masque for Two
Flutes



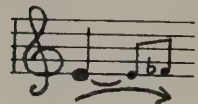
Lukas Foss:
For 24 Winds



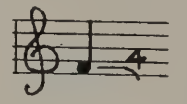
Chou Wen-chung:
Cursive



Per Nørgard:
Symphony No. 2



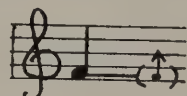
Harley Gaber:
Voce II



Zbigniew Bujarski:
Chamber Piece



Ruth Wylie Shaw:
Incubus



Kazuo Fukushima:
Three Pieces from
"Chu-U"

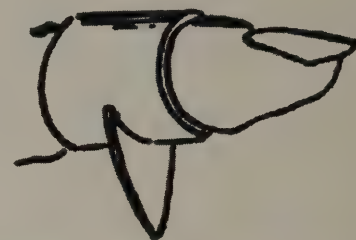
My own compositions are poly-microtonal. I prefer to mix and match tunings in each composition. Another interest of mine is to connect natural phenomena to intervallic treatment. In my string quartet, "Cosmic Rays," the actual splitting of a photographed cosmic ray is invoked by "splitting" and rotating a musical motif through a display of virtuosic sliding tones, sometimes traveling opposite directions simultaneously on two or three strings.

Electronic tuners, now augmented by computers, have made the production of microtonal music possible for anyone, but technology is still a toy when it comes to the mass of microtonal music accomplishments.

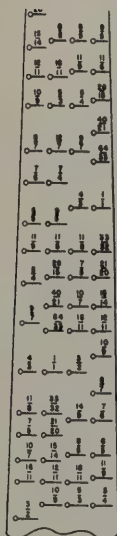
Though synthesizers are naturals for microtonal sound production, any instrument can play microtonally. Mine is the bassoon, once thought to be quite lame regarding its ability to play in tune. It can do anything thanks to its large range, overtone-

rich tone, open tone holes, and relative plethora of keys. It can do anything, but so can a cello, a flute, a trumpet (albeit with one extra piston), or even a piano, when it is retuned accordingly, or redesigned with microtonal intentions. And, of course, one can sing microtonally.

The lesson here is that with an infinite number of pitch points on the musical continuum, relationships between intervals sensible to the composer are eminently transferable to the audience. Everything is intervals, after all; matter is intervallic on the sub-atomic scale. There is space between all things, and that is what creates meaning. ⊕



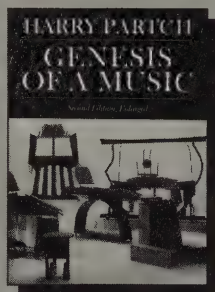
Below:
Fingerboard
for Harry
Partch's
Adapted
Viola, with 29
stops in each
2/1 frequency
—GENESIS OF A
MUSIC.



Genesis of a Music

Harry Partch. 1949; 517 pp. \$17.95, Da Capo Press, Inc., 233 Spring Street, New York, NY 10013, 212/620-8000.

This book is possibly too technical for casual reading. For the serious student of microtonality, it is the classic textbook. Probably no book in the music field has been stolen from more libraries than **Genesis of a Music**. Partch introduced the American subconscious to many things, including percussion music and new instruments (many pictured here) plucked



from a feverish brain. After reading this book you'll never want to use the outdated term "octave" again.

Twentieth Century Microtonal Notation

Gardner Read. 1990; 198 pp. Out of print; Greenwood Press has tentatively scheduled a new printing in the fall of 1997. There is no pretension of explanation here, merely diversity and even-handedness. In some ways, the notation verges on art work, but it is always seriously intended

for communicating to performers the ups and downs of pitch.

Pitch for the International Microtonalist

\$70, British Harry Partch Society, 33 Arthur Road, Erdington, Birmingham B24 9EX, England, and American Festival of Microtonal Music, 318 East 70th Street, Suite 5FW, New York, NY 10021.

This four-issue set was introduced almost two decades ago to offer performers and researchers what they needed for independent work in microtonal pursuits. Fingering charts, recordings, bibliography, articles, and reviews provide one-stop shopping for musicians and scholars. —JR

“Regardless of whether the nomenclature of current musical theory is adequate for current practice, it has two prejudicial aspects: first, it divorces the facts of the science of sound from the practice of the art of music—a bit of supreme irony; and second, it is incapable of the elasticity which would permit its continued use in any theoretical expansion such as Monophony. The superficiality of its terms is manifest; “minor,” for example, does not in itself convey anything of fundamental significance. Hence the necessity, in this exposition, of a complete reorganization of nomenclature. —GENESIS OF A MUSIC



Tuning List

This mailing list is intended for exchanging ideas relevant to alternative tunings, experimental musical instrument design, software, and relevant topics. To subscribe, send a two-line message (first line blank, second line SUBSCRIBE TUNING firstname last-name) to LISTPROC@eartha.mills.edu.

Microtonal Music Website

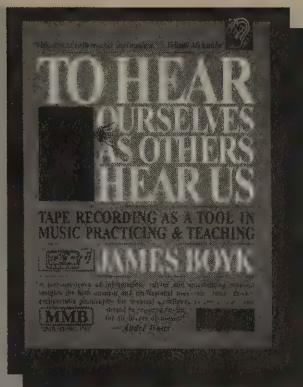
www.math.cudenver.edu/jstarett/microtone.html

Microtonalist and mathematician John Starrett maintains this exhaustive compendium of web resources for microtonal music, with links to every website he can find for composers, performers, instruments, software, journals, resources, and aficionados. —MKS

To Hear Ourselves As Others Hear Us

Tape Recording As A Tool In Music Practicing & Teaching

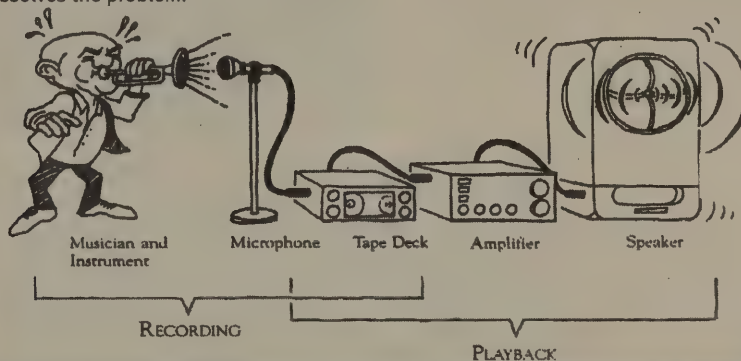
James Boyk. 1996; 78 pp. \$9.95 (\$13.45 postpaid). MMB Music, Inc., Contemporary Arts Building, 3526 Washington Avenue, St. Louis, MO 63101-1019, 800/543-3771, 314/531-9635, fax 314/531-8384, mmbmusic@mmbmusic.com.



Don't have a hundred dollars for an hour with a top-notch music coach? Here you have fifteen "coaching sessions" on teaching music to yourself and others through singing, dancing, simple musical analysis, and recording. Unlike most guides to home recording or studio technique, this book focuses on musical performance, not wiring diagrams. There's a broad range of related info, too: everything from what equipment to buy (with prices and dealers' addresses) to how and where to press and package your own CD (with costs and addresses). The whole thing is nicely spiced with the author's personal anecdotes and potent quotes from the likes of Beethoven, Cézanne, and the Talmud. Musicians of all ages and abilities, as well as music teachers, will find a wealth of useful information here. If I were giving instrument lessons, I'd buy this thing by the case. It could be the best ten bucks you or your whiz-kid will spend in a long time. —Steve Taylor

“ Small as this book is, it was originally going to be even smaller, narrowly covering tape recording as a tool in practicing and teaching. But . . . trying to imagine your needs, I found I could not talk about using tape in practicing without saying what I think practicing is all about. The same went for teaching.

“ Everyone speaks his or her native language expressively. This opens the door to beautiful playing via singing, the heightened relative of speech. . . . When you . . . have a difficult sequence of notes, before you do anything else, make sure you can sing the passage not just comfortably, but with verve. It is amazing how often this dissolves the problem.



“ RECORD anything from a page to a whole piece.

DANCE to the playback. By dancing I mean any whole-body movement. Walking is fine; "conducting" and toe-tapping are not.

As you dance, NOTICE where your dancing body wants the beats to occur and where they actually occur on your tape. If the two disagree, the body is right; so PERFORM the passage again and dance it again. Perform it again, not play it again. You are teaching yourself to perform, and you do that by performing.

“ To preserve the magic, practice must preserve a direct, not convoluted, relationship to performance. Too often the meaning of performance seems to be the practice that led up to it, and the performance itself becomes a recounting of the tortures of learning. This is backwards: *The meaning of practice must be the performance!*

Microtonal Compact Disks

Johnny Reinhard

Detwelvulate

Ivor Darreg. C/o Garry Morrison, 13036 Station Drive, Austin, TX 78727.

This CD is designed to demonstrate the different ways to carve up the octave equally. Hear the distinctions between seventeen and eighteen equal temperaments, between thirteen and fifty-three tones per octave. Darreg was a generous mind and a major influence to a generation of microtonalists.

Johann Sebastian Bach Armin Schoof, organ

SACD 9010-3. Write Verein zur Forderung der Music an St. Jacobi Lubeck, Beim Drogenvorwerk, 2400 Lubeck, Germany. Phone 04 52/50 1403 in Lubeck.

The Toccata and Fugue in F

in Werckmeister III tuning is scrumptious. This is the very organ to which Bach trekked, almost losing his job and almost marrying Dietrich Buxtehude's daughter. The sound of the organs moves through your feet as you listen to them in real time; this can transfer to CD listeners with the right kind of speakers. Pungent sound and historical accuracy make this CD the mainstay of my Microtonal Bach radio program on WKCR in New York every Christmas Day.

Between the Keys

American Festival of Microtonal Music Ensemble. Newport Classic NPD 85526, scheduled for re-release by Sony.

Charles Ives is played on two pianos tuned a quarter-tone apart. Joshua Pierce's playing of John Cage's Sonatas and Interludes is the best Cage I've ever heard.

Georgia Sea Islands

New World Records 80278-2 (phone 212/302-0460).

There is no comparison to the intonational idiosyncratic music of these remote islands. The musical independence demonstrated on this CD—featuring Bessie Jones and Joe Armstrong—will sound fresh to the ear, as if the harmonies have some kind of "spring" action.

Crash Landing

Catler Brothers. FreeNote FN 2001.

Ever hear a Stratocaster guitar in forty-nine-note-per-octave unequal tuning play original rock? Brothers Jon and Bradford match drummer Jonathan Kane in a rock and roll romp. "Spiritual Brother" is my favorite, but the Ornette Coleman cover

"Free" provides the album's context.

Beauty in the Beast

Wendy Carlos. Audion SYNCD 200, to be re-released soon on a new label.

Temporarily out of circulation due to a label change, this recording by synthesizer pioneer Wendy Carlos is perhaps the most fleshed-out fantasy of microtonal parameters yet. Ostensibly an experiment in tweaked imagination, its profundity soars. Keep your eyes open for its re-release, and then follow with your ears.

The Music of Harry Partch

CRI CD 7000.

Consists of previously recorded material by

American microtonal pioneer Harry Partch. Hearing the real thing on CD with Harry leading his hand-picked crew is rich history. And it's forty-three notes to the octave—unequal.

Wlekya

Theodosi Spassov, Kaval Gega GC 541. Cassette only.

This young Bulgarian master interstylistically entwines the microtonal magic of Thracian heritage on that chameleon woodwind, the kaval. You have to hear its humongous virtuosity to believe it.

Anthologie de la Musique Arabe

Oum Kalsoum. Club Du Disque Arabe AAA 024. 125, Boulevard de Menilmontant 705011, Paris, (tel. 1-43-57-68-69).

Deliciously quarter-tonal music by the Mother of Us All, Oum Kalsoum.

The Ukulele

A Visual History

Jim Beloff. 1997; 112 pp.
\$24.95, Miller Freeman.

This nicely photographed, fun-to-read, and beautifully printed book does a very comprehensive job of explaining the history of the ukulele from its humble origins as a Portuguese seafaring instrument through its Hawaiian lineage and its twentieth century players and crooners. The ukulele's manufacturing history and materials are covered, but missing is a structural description of the instruments. A must-have for ukulele fans and a wonderful addition for any stringed instrument library.

After reading this book, you will know how to judge a "jumping flea" at the next swap meet. —Dieter Soltis



The Fine Art of the Tin Can

Techniques and Inspirations

Bobby Hansson. 1996; 144 pp.
\$21.95, Lark Books.

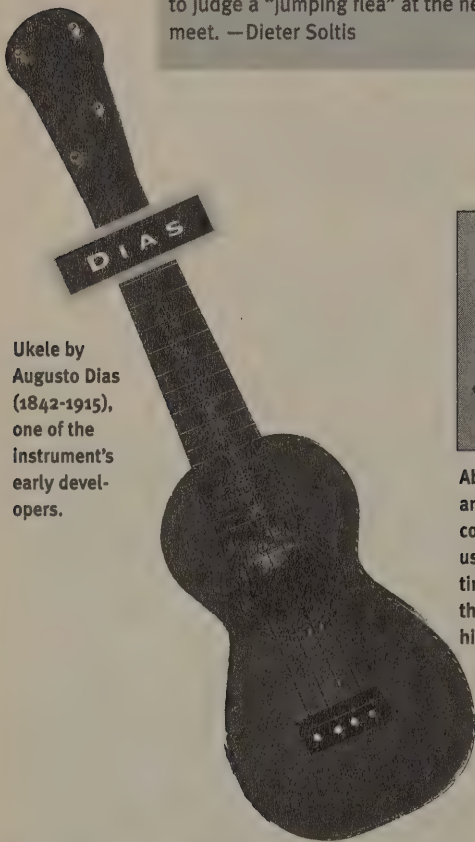
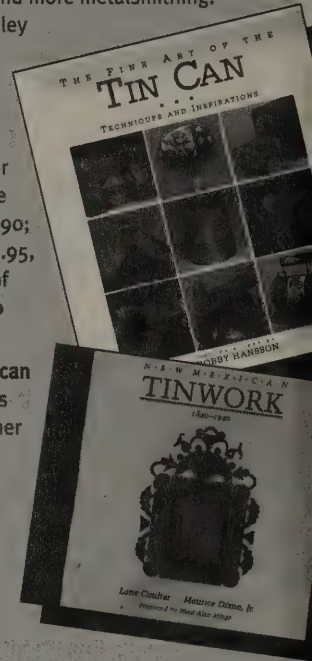
Most how-to-do-it books give a narrow spectrum of examples. *Tin Can* displays a wide range of objects (deconstructed cans, toys, musical instruments, sconces, rat traps, jewelry, fine art). Other books have photos too tiny to really see what the tinworker has done. *Tin Can* has clear engaging colorful photos. Surprising, stimulating and joyful with access to tool companies, suppliers, and more metalsmithing.

—Martin Foley

New Mexican Tinwork

1840-1940
Lane Coulter and Maurice Dixon, Jr. 1990; 189 pp. \$27.95, University of New Mexico Press.

New Mexican Tinwork was the only other tin art book Bobby Hansson mentioned when we phoned him at Rising Sun, Maryland. New Mexican tinwork—poor man's silverwork—done with meticulous thought and patterning. Mostly frames, crosses, and sconces, explained in academic prose. We agree with Bobby: this is the best book we've found, after his. —PW



Ukele by Augusto Dias (1842-1915), one of the instrument's early developers.



Above: Snips and shears commonly used for cutting tin. Note the compound hinges on the

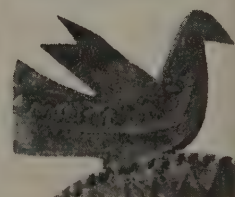
aviation-style snips, which give increased leverage for easier cutting. —THE FINE ART OF THE TIN CAN.



Icon Tina Turner, by Harvey Crabclaw. —THE FINE ART OF THE TIN CAN.



Right: Work characteristic of the Mora Octagonal Workshop —NEW MEXICAN TINWORK.



Suspended Animation
Six Essays on the Preservation
of Bodily Parts

F. Gonzalez-Crussi, Photographs
by Rosamund W. Purcell. 1995, 151 pp.
\$16.00, Harcourt Brace & Company.

The greatest anxiety I know is empathic contemplation of a disanimate corpse, imagining my own destiny as claustrophobic void, my material form prelude to dust. I've often wondered how medical examiners and morticians do their work free from funereal dust-to-dust despair. Says Gonzalez-Crussi, "Throughout much of the nineteenth century an unfeeling attitude, akin to callousness, was propounded by foremost medical authorities as indispensable to the optimal practice of the profession."

In *Suspended Animation* Gonzalez-Crussi has composed six elegant but somewhat opaque essays on mortality, as reflected in his visits to medical museums in Bologna and Madrid where actual body parts and wax replications are stored for study by medical students. It's almost as if his words are a barricade against the excruciating reality of meat death, as he considers at once the speculative history of bodies and body parts and the actual history of their preservation.

Rosamund Purcell's accompanying photos are exquisite visual meditations on mortality, the most disturbing of which, to me, is the photo of a baby in a bottle, shot in Madrid. The baby is at peace, its tiny hands folded together in the same way that my children held their hands, expectant that something wonderful was about to occur. —Jon Lebkowski

"The lover who feels transfigured by the power of love salutes in himself 'a new man,' yet mourns the death of his former self. The parents who exult at the life of their child are thereby reminded of the passage of time and handed an obscure premonition that a new generation approaches, like a tidal wave, to replace them. The mother who senses new life stir in her womb also

experiences dramatic changes in her entire body, and with them a heightened sense of the precariousness and fragility of life. The scientist who scrutinizes the development of a new life knows it for an incredibly complex wel-

ter of permutations, combinations, chemical reactions and exchanges that must take place in an exquisitely orchestrated fashion. No trials are allowed: genes must be activated at exactly the right time, enzymes released as preordained, and all this under perpetually changing conditions. The slightest misstep, the most trivial omission,

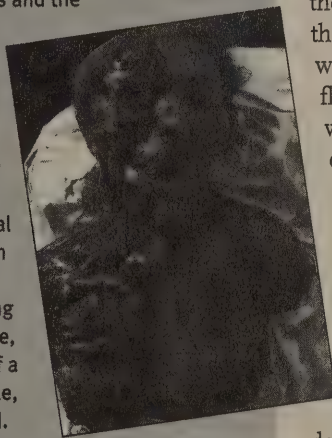
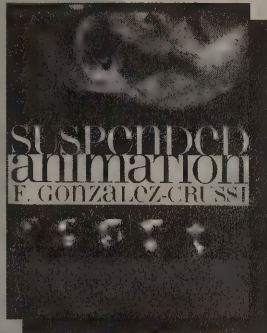
asynchrony, or incorrect performance, and the price is death.

"With loving attention to detail, came the finishing touches. Every imperfection of the cast was carefully smoothed out; the surface of the modeled specimen was polished with turpentine-soaked brushes; the delicate striations of the muscles were simulated with tracings of a fine point. Tenuous, translucent membranous structures, like the omentum or the pericardium, were achieved by flattening the wax with a roller on a preheated marble slab.

Tiny branches of lymphatics, delicate blood vessels, and minute radicles of nerves were rendered by means of threads soaked in wax; drops of wax made to slide along these lines would produce the small lymph nodes. Not the slightest concession to expediency was ever made if it meant detriment to the realism desired; eyebrows and eyelashes were authentic, implanted one by one on the appropriate site of the statue; and Lelli, the Bolognese artist, used real human skeletons as frames to support the muscles and soft tissues he molded.

patient's medial right arm. This was a departure from the normal protocol, which was to cannulate femoral vessels for the washout.

Cannulation was completed at 06:40 and the washout perfusion was begun. No clots were seen and the embalmer was vocally and visually impressed by the flow as well as by the amount of hemodilution achieved.



Cryonics Magazine

Brian Shock, Editor. \$15 /year (4 issues).
Alcor Life Extension Foundation, 7895 E.
Alcoma Drive, #110, Scottsdale, AZ 85260,
602/922-9013.

This is the most grippingly authentic magazine I read. It's about the nitty gritty of freezing people after they die. The best parts are the accounts of individual cases.

The members of Alcor believe that there is a fair chance of being revived by nanotechnology-based medicine a hundred years from now. Being frozen, with the chance that you will be revived, is worth a try. Alcor maintains several emergency response teams that go out when a member is dying or has just died, plunge into the bureaucracy of an unfamiliar hospital, retrieve the body, pack it in ice, and bring it back to Alcor to be immersed in liquid nitrogen. Each case has different difficulties caused by hospital staff, relatives, uncertainty about exactly when someone will "deanimate," and struggles to get equipment and supplies on short notice in strange cities.

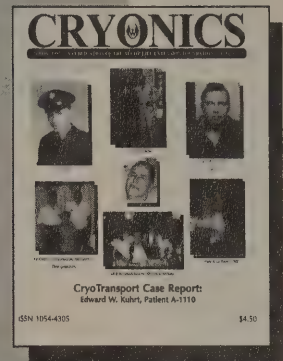
Cryonics's matter-of-fact reporting style adds to the impact. You are reading along about blood clotting during whole-body perfusion, you look up and it hits you that

regular people are doing these amazing and slightly taboo things in the hopes of saving the life of a friend. — Ted Kaehler (Alcor member #A-1412)

"The patient was transported to a local mortuary for whole-body washout. While the Alcor team finalized set-up of the roller pump and elimination of air bubbles from the tubing, the mortician cannulated brachial vessels on the

patient's medial right arm. This was a departure from the normal protocol, which was to cannulate femoral vessels for the washout.

Cannulation was completed at 06:40 and the washout perfusion was begun. No clots were seen and the embalmer was vocally and visually impressed by the flow as well as by the amount of hemodilution achieved.



Far Left:
Dissection of the top layer. Museo Anatomico, Facultad de Medicina, Valladolid, 1993.

Left:
Peaceful baby in bottle. Facultad de Medicina, Universidad Complutense, Madrid, 1993. —SUSPENDED ANIMATION.

PLACES TO INTERVENE IN A SYSTEM

(in increasing order of effectiveness)

Donella H. Meadows

Folks who do systems analysis have a great belief in "leverage points." These are places within a complex system (a corporation, an economy, a living body, a city, an ecosystem) where a small shift in one thing can produce big changes in everything.

The systems community has a lot of lore about leverage points. Those of us who were trained by the great Jay Forrester at MIT have absorbed one of his favorite stories. "People know intuitively where leverage points are. Time after time I've done an analysis of a company, and I've figured out a leverage point. Then I've gone to the company and discovered that everyone is pushing it **in the wrong direction!**"

The classic example of that backward intuition was Forrester's first world model. Asked by the Club of Rome to show how major global problems—poverty and hunger, environmental destruction, resource depletion, urban deterioration, unemployment—are related and how they might be solved, Forrester came out with a clear leverage point: Growth. Both population and economic growth. Growth has costs—among which are poverty and hunger, environmental destruction—the whole list of problems we are trying to solve with growth!

Donella Meadows is a systems analyst, gardener, syndicated columnist, wool sheep raiser, college professor and simply one of the most heartfelt intelligent minds in anybody's watershed. This piece, part of a work in progress, appears here in print for the first time. Take your time, return to the box on interventions. Donella's wisdom nourishes clarity, discourages facileness, makes a big difference. —PW

9. Numbers (subsidies, taxes, standards).
8. Material stocks and flows.
7. Regulating negative feedback loops.
6. Driving positive feedback loops.
5. Information flows.
4. The rules of the system (incentives, punishments, constraints).
3. The power of self-organization.
2. The goals of the system.
1. The mindset or paradigm out of which the goals, rules, feedback structure arise.

The world's leaders are correctly fixated on economic growth as the answer to virtually all problems, but they're pushing with all their might in the wrong direction.

Counterintuitive. That's Forrester's word to describe complex systems. The systems analysts I know have come up with no quick or easy formulas for finding leverage points. Our counter-intuitions aren't that well developed. Give us a few months or years and we'll model the system and figure it out. We know from bitter experience that when we do discover the system's leverage points, hardly anybody will believe us.

Very frustrating. So one day I was sitting in a meeting about the new global trade regime, NAFTA and GATT and the World Trade Organization. The more I listened, the more I began to simmer inside. "This is a **HUGE NEW SYSTEM** people are inventing!" I said to myself. "They haven't the *slightest idea* how it will behave," myself said back to me. "It's cranking the system in the wrong direction—growth, growth at any price!! And the control measures these nice folks are talking about—small parameter adjustments, weak negative feedback loops—are **PUNY!**"

Suddenly, without quite knowing what was happening, I got up, marched to the flip chart, tossed over a clean page, and wrote: "Places to Intervene in a System," followed by nine items (see above). Everyone

Systems Theory

To explain numbers, stocks, delays, flows, feedback, and so forth, I need to start with a basic diagram.

The "state of the system" is whatever standing stock is of importance—amount of water behind the dam, harvestable wood in the forest, people in the population, money in the bank, whatever. System states are usually physical stocks, but they could be non-material ones as well—self-confidence, trust in public officials, perceived safety of a neighborhood.

There are usually inflows that increase the stock and outflows that decrease it. Deposits increase the money in the bank; withdrawals decrease it. River inflow and rain raise the water behind the dam; evaporation and discharge through the spillway lower it. Political corruption decreases trust in public officials; experience of a well-functioning government increases it.

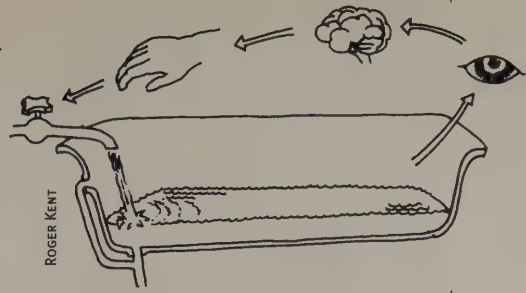
Insofar as this part of the system consists of physical stocks and flows—and they are the bedrock of any system—it obeys laws of conservation and accumulation. You can understand its dynamics readily, if you can understand a bathtub with some water in it (the state of the system) and an inflowing faucet and outflowing drain. If the inflow rate is higher than the outflow rate, the stock

gradually rises. If the outflow rate is higher than the inflow, the stock goes down. The sluggish response of the water level to what could be sudden twists of input and output valves is typical—it takes time for flows to accumulate.

The rest of the diagram is information that causes the flows to change, which then cause the stock to change. If you're about to take a bath, you have a desired water level in mind. You plug the drain, turn on the faucet and watch until the water rises to where you want it (until the discrepancy between the desired and the actual state of the system is zero). Then you turn the water off.

If you start to get in the bath and discover that you've underestimated your volume and are about to produce an overflow, you can open the drain, until the water goes down to your desired level.

Those are two negative feedback loops, correcting loops, one controlling the inflow, one controlling the outflow, either or both of which you can use to bring the water level to your goal. Notice that the goal and the feedback connections are not visible. If you were an extraterrestrial trying to figure out why the tub fills and empties, it would take a while to realize that there's a goal and a discrepancy-measuring process going on within the creature manipulating the faucets. But if you watched long enough, you could figure that out. Now let's take into account that you have two taps,



a hot and a cold, and that you're also adjusting for another system state—temperature. Suppose the hot inflow is connected to a boiler way down in the basement, four floors below, so it doesn't respond quickly. And the inflow pipe is connected to a reservoir somewhere, which is connected to the planetary hydrological cycle. The system begins to get complex and interesting.

Mentally change the bathtub into your checking account. Write checks, make deposits, add a faucet that dribbles in a little interest and a special drain that sucks your balance even drier if it ever goes dry. Attach your account to a thousand others and let the bank create loans as a function of their combined deposits, link a thousand banks into a federal reserve system—and you begin to see how simple stocks and flows, plumbed together, make up systems way too complex to figure out.

in the meeting blinked in surprise, including me. "That's brilliant!" someone breathed. "Huh?" said someone else.

I realized that I had a lot of explaining to do.

In a minute I'll go through the list, translate the jargon, give examples and exceptions. First I want to place the list in a context of humility. What bubbled up in me that day was distilled from decades of rigorous analysis of many different kinds of systems done by many smart people. But complex systems are, well, complex. It's dangerous to generalize about them. What you are about to read is not a recipe for finding leverage points. Rather it's an invitation to think more broadly about system change.

That's why leverage points are not intuitive. I've included a brief overview of systems theory (see box above) to provide the context for the list that follows.

9. Numbers.

Numbers ("parameters" in systems jargon) determine how much of a discrepancy

turns which faucet how fast. Maybe the faucet turns hard, so it takes a while to get the water flowing. Maybe the drain is blocked and can allow only a small flow, no matter how open it is. Maybe the faucet can deliver with the force of a fire hose. These considerations are a matter of numbers, some of which are physically locked in, but most of which are popular intervention points.

Consider the national debt. It's a negative bathtub, a money hole. The rate at which it sinks is the annual deficit. Tax income makes it rise, government expenditures make it fall. Congress and the president argue endlessly about the many parameters that open and close tax faucets and spending drains. Since those faucets and drains are connected to the voters, these are politically charged parameters. But, despite all the fireworks, and no matter which party is in charge, the money hole goes on sinking, just at different rates.

The amount of land we set aside for conservation. The minimum wage. How much we spend on AIDS research or Stealth bombers. The service charge the bank extracts from your account. All these are numbers, adjustments to faucets. So,

by the way, is firing people and getting new ones. Putting different hands on the faucets may change the rate at which they turn, but if they're the same old faucets, plumbed into the same system, turned according to the same information and rules and goals, the system isn't going to change much. Bill Clinton is different from George Bush, but not all that different.

Numbers are last on my list of leverage points. Diddling with details, arranging the deck chairs on the *Titanic*. Probably ninety-five percent of our attention goes to numbers, but there's not a lot of power in them.

Not that parameters aren't important—they can be, especially in the short term and to the individual who's standing directly in the flow. But they **RARELY CHANGE BEHAVIOR**. If the system is chronically stagnant, parameter changes rarely kick-start it. If it's wildly variable, they don't usually stabilize it. If it's growing out of control, they don't brake it.

Whatever cap we put on campaign contributions, it doesn't clean up politics. The Feds fiddling with the interest rate haven't made business cycles go away. (We always forget that during upturns, and are shocked, shocked by the downturns.)

Diddling with details, arranging the deck chairs on the *Titanic*. Probably ninety-five percent of our attention goes to numbers, but there's not a lot of power in them.

PLACES TO INTERVENE IN A SYSTEM

Spending more on police doesn't make crime go away.

However, there are critical exceptions. Numbers become leverage points when they go into ranges that kick off one of the items higher on this list. Interest rates or birth rates control the gains around positive feedback loops. System goals are parameters that can make big differences. Sometimes a system gets onto a chaotic edge, where the tiniest change in a number can drive it from order to what appears to be wild disorder.

Probably the most common kind of critical number is the length of delay in a feedback loop. Remember that bathtub on the fourth floor I mentioned, with the water heater in the basement? I actually experienced one of those once, in an old hotel in London. It wasn't even a bathtub with buffering capacity; it was a shower. The water temperature took at least a minute to respond to my faucet twists. Guess what my shower was like. Right, oscillations from hot to cold and back to hot, punctuated with expletives. Delays in negative feedback loops cause oscillations. If you're trying to adjust a system state to your goal, but you only receive delayed information about what the system state is, you will overshoot and undershoot.

Same if your information is timely, but your response isn't. For example, it takes several years to build an electric power plant, and then that plant lasts, say, thirty years. Those delays make it impossible to build exactly the right number of plants to supply a rapidly changing demand. Even with immense effort at forecasting, almost every electricity industry in the world experiences long oscillations between overcapacity and undercapacity. A system just can't respond to short-term changes when it has long-term delays. That's why a massive central-planning system, such as the Soviet Union or General Motors, necessarily functions poorly.

A delay in a feedback process is critical **RELATIVE TO RATES OF CHANGE** (growth, fluctuation, decay) **IN THE SYSTEM STATE THAT THE FEEDBACK LOOP IS TRYING TO CONTROL.** Delays that are too short cause overreaction, oscillations amplified by the

jumpiness of the response. Delays that are too long cause damped, sustained, or exploding oscillations, depending on how much too long. At the extreme they cause chaos. Delays in a system with a threshold, a danger point, a range past which irreversible damage can occur, cause overshoot and collapse.

Delay length would be a high leverage point, except for the fact that delays are not often easily changeable. Things take as long as they take. You can't do a lot about the construction time of a major piece of capital, or the maturation time of a child, or the growth rate of a forest. It's usually easier to slow down the change rate (positive feedback loops, higher on this list), so feedback delays won't cause so much trouble. Critical numbers are not nearly as common as people seem to think they are. Most systems have evolved or are designed to stay out of sensitive parameter ranges. Mostly, the

numbers are not worth the sweat put into them.

8.

Material stocks and flows.

The plumbing structure, the stocks and flows and their physical arrangement, can have an enormous effect on how a system operates.

When the Hungarian road system was laid out so all traffic from one side of the nation to the other had to pass through central Budapest, that determined a lot about air pollution and commuting delays that are not easily fixed by pollution control devices, traffic lights, or speed limits. The only way to fix a system that is laid out wrong is to rebuild it, if you can.

Often you can't, because physical building is a slow and expensive kind of change. Some stock-and-flow structures are just plain unchangeable.

The baby-boom swell in the US population first caused pressure on the elementary school system, then high schools and colleges, then jobs and housing, and now we're looking forward to supporting its retirement. Not much to do about it, because five-year-olds become six-year-olds, and sixty-four-year-olds become sixty-five-year-olds predictably and unstopably. The same can be said for the lifetime of destructive CFC molecules in the ozone layer, for the rate at which contaminants get washed out of aquifers, for the fact that

an inefficient car fleet takes ten to twenty years to turn over.

The possible exceptional leverage point here is in the size of stocks, or buffers. Consider a huge bathtub with slow in and outflows. Now think about a small one with fast flows. That's the difference between a lake and a river. You hear about catastrophic river floods much more often than catastrophic lake floods, because stocks that are big, relative to their flows, are more stable than small ones. A big, stabilizing stock is a buffer.

The stabilizing power of buffers is why you keep money in the bank rather than living from the flow of change through your pocket. It's why stores hold inventory instead of calling for new stock just as customers carry the old stock out the door. It's why we need to maintain more than the minimum breeding population of an endangered species. Soils in the eastern US are more sensitive to acid rain than soils in the west, because they haven't got big buffers of calcium to neutralize acid. You can often stabilize a system by increasing the capacity of a buffer. But if a buffer is too big, the system gets inflexible. It reacts too slowly. Businesses invented just-in-time inventories, because occasional vulnerability to fluctuations or screw-ups is cheaper than certain, constant inventory costs—and because small-to-vanishing inventories allow more flexible response to shifting demand.

There's leverage, sometimes magical, in changing the size of buffers. But buffers are usually physical entities, not easy to change.

The acid absorption capacity of eastern soils is not a leverage point for alleviating acid rain damage. The storage capacity of a dam is literally cast in concrete. Physical structure is crucial in a system, but the leverage point is in proper design in the first place. After the structure is built, the

leverage is in understanding its limitations and bottlenecks and refraining from fluctuations or expansions that strain its capacity.

7.

Regulating negative feedback loops.

Now we're beginning to move from the physical part of the system to the information and control parts, where more leverage can be found. Nature evolves negative feedback loops and humans invent

There's leverage, sometimes magical, in changing the size of buffers. But buffers are usually physical entities, not easy to change.

them to keep system states within safe bounds.

A thermostat loop is the classic example. Its purpose is to keep the system state called "room temperature" fairly constant at a desired level. Any negative feedback loop needs a goal (the thermostat setting), a monitoring and signaling device to detect excursions from the goal (the thermostat), and a response mechanism (the furnace and/or air conditioner, fans, heat pipes, fuel, etc.).

A complex system usually has numerous negative feedback loops it can bring into play, so it can self-correct under different conditions and impacts. Some of those loops may be inactive much of the time—like the emergency cooling system in a nuclear power plant, or your ability to sweat or shiver to maintain your body temperature. One of the big mistakes we make is to strip away these emergency response mechanisms because they aren't often used and they appear to be costly. In the short term we see no effect from doing this. In the long term, we narrow the range of conditions over which the system can survive.

One of the most heartbreaking ways we do this is in encroaching on the habitats of endangered species. Another is in encroaching on our own time for rest, recreation, socialization, and meditation.

The "strength" of a negative loop—its ability to keep its appointed stock at or near its goal—depends on the combination of all its parameters and links—the accuracy and rapidity of monitoring, the quickness and power of response, the directness and size of corrective flows.

There can be leverage points here. Take markets, for example, the negative feedback systems that are all but worshiped by economists—and they can indeed be marvels of self-correction, as prices vary to keep supply and demand in balance. The more the price—the central signal to both producers and consumers—is kept clear, unambiguous, timely, and truthful, the more smoothly markets will operate. Prices that reflect full costs will tell consumers how much they can actually afford and will reward efficient producers. Companies and governments are fatally attracted to the price leverage point, of course, all of them pushing in the wrong direction with subsidies, fixes, externalities, taxes, and other forms of confusion. The REAL leverage here is to keep them

from doing it. Hence anti-trust laws, truth-in-advertising laws, attempts to internalize costs (such as pollution taxes), the removal of perverse subsidies, and other ways of leveling market playing fields.

The strength of a negative feedback loop is important **RELATIVE TO THE IMPACT IT IS DESIGNED TO CORRECT**. If the impact increases in strength, the feedbacks have to be strengthened too.

A thermostat system may work fine on a cold winter day—but open all the windows and its corrective power will fail. Democracy worked better before the advent of the brainwashing power of centralized mass communications. Traditional controls on fishing were sufficient until radar spotting and drift nets and other technologies made it possible for a few actors to wipe out the fish. The power of big industry calls for the power of big government to hold it in check; a global economy makes necessary a global government.

Here are some other examples of strengthening negative feedback controls to improve a system's self-correcting abilities: preventive medicine, exercise, and good nutrition to bolster the body's ability to fight disease, integrated pest management to encourage natural predators of crop pests, the Freedom of Information Act to reduce government secrecy, protection for whistle blowers, impact fees, pollution taxes, and performance bonds to recapture the externalized public costs of private benefits.

6. Driving positive feedback loops.

A positive feedback loop is self-reinforcing. The more it works, the more it gains power to work some more.

The more people catch the flu, the more they infect other people. The more babies are born, the more people grow up to have babies. The more money you have in the bank, the more interest you earn, the more money you have in the bank. The more the soil erodes, the less vegetation it can support, the fewer roots and leaves to soften rain and runoff, the more soil erodes. The more high-energy neutrons in the critical mass, the more they knock into nuclei and generate more.

Positive feedback loops drive growth, explosion, erosion, and collapse in sys-

tems. A system with an unchecked positive loop ultimately will destroy itself. That's why there are so few of them.

Usually a negative loop kicks in sooner or later. The epidemic runs out of infectable people—or people take increasingly strong steps to avoid being infected. The death rate rises to equal the birth rate—or people see the consequences of unchecked population growth and have fewer babies. The soil erodes away to bedrock, and after a million years the bedrock crumbles into new soil—or people put up check dams and plant trees.

In those examples, the first outcome is what happens if the positive loop runs its course, the second is what happens if there's an intervention to reduce its power.

Reducing the gain around a positive loop—slowing the growth—is usually a more powerful leverage point in systems than strengthening negative loops, and much preferable to letting the positive loop run.

Population and economic growth rates in the world model are leverage points, because slowing them gives the many negative loops, through technology and markets and other forms of adaptation, time to function. It's the same as slowing the car when you're driving too fast, rather than calling for more responsive brakes or technical advances in steering.

The most interesting behavior that rapidly turning positive loops can trigger is chaos. This wild, unpredictable, unreplicable, and yet bounded behavior happens when a system starts changing much, much faster than its negative loops can react to it.

For example, if you keep raising the capital growth rate in the world model, eventually you get to a point where one tiny increase more will shift the economy from exponential growth to oscillation. Another nudge upward gives the oscillation a double beat. And just the tiniest further nudge sends it into chaos.

I don't expect the world economy to turn chaotic any time soon (not for that reason, anyway). That behavior occurs only in unrealistic parameter ranges, equivalent to doubling the size of the economy within a year. Real-world systems do turn chaotic, however, if something in them can grow or decline very fast. Fast-replicating bacteria or insect populations, very infectious epidemics, wild speculative bubbles in money systems, neutron fluxes in the guts

Nature evolves negative feedback loops and humans invent them to keep system states within safe bounds.

Wild, unpredictable, unreplicable, and yet bounded behavior happens when a system starts changing much, much faster than its negative loops can react to it.

PLACES TO INTERVENE IN A SYSTEM

Missing feedback is a common cause of system malfunction. Adding or rerouting information can be a powerful intervention, usually easier and cheaper than rebuilding physical structure.

Rules change behavior. Power over rules is real power.

of nuclear power plants. These systems are hard to control, and control must involve slowing down the positive feedbacks.

In more ordinary systems, look for leverage points around birth rates, interest rates, erosion rates, "success to the successful" loops, any place where the more you have of something, the more you have the possibility of having more.

5. Information flows.

There was this subdivision of identical houses, the story goes, except that the electric meter in some of the houses was installed in the basement and in others it was installed in the front hall, where the residents could see it constantly, going round faster or slower as they used more or less electricity. Electricity consumption was 30 percent lower in the houses where the meter was in the front hall.

Systems-heads love that story because it's an example of a high leverage point in the information structure of the system. It's not a parameter adjustment, not a strengthening or weakening of an existing loop. It's a **NEW LOOP**, delivering feedback to a place where it wasn't going before.

In 1986 the US government required that every factory releasing hazardous air pollutants report those emissions publicly. Suddenly everyone could find out precisely what was coming out of the smokestacks in town. There was no law against those emissions, no fines, no determination of "safe" levels, just information. But by 1990 emissions dropped 40 percent. One chemical company that found itself on the Top Ten Polluters list reduced its emissions by 90 percent, just to "get off that list."

Missing feedback is a common cause of system malfunction. Adding or rerouting information can be a powerful intervention, usually easier and cheaper than rebuilding physical structure.

The tragedy of the commons that is exhausting the world's commercial fisheries occurs because there is no feedback from the state of the fish population to the

decision to invest in fishing vessels. (Contrary to economic opinion, the price of fish doesn't provide that feedback. As the fish get more scarce and hence more expensive, it becomes all the more profitable to go out and catch them. That's a perverse feedback, a positive loop that leads to collapse.)

It's important that the missing feedback be restored to the right place and in compelling form. It's not enough to inform all the users of an aquifer that the groundwater level is dropping. That could trigger a race to the bottom. It would be more effective to set a water price that rises steeply as the pumping rate exceeds the recharge rate.

Suppose taxpayers got to specify on their return forms what government services their tax payments must be spent on. (Radical democracy!) Suppose any town or company that puts a water intake pipe in a river had to put it immediately **DOWNSTREAM** from its own outflow pipe. Suppose any public or private official who made the decision to invest in a nuclear power plant got the waste from that plant stored on his/her lawn.

There is a systematic tendency on the part of human beings to avoid accountability for their own decisions. That's why there are so many missing feedback loops—and why this kind of leverage point is so often popular with the masses, unpopular with the powers that be, and effective, if you can get the powers that be to permit it to happen or go around them and make it happen anyway.

4. The rules of the system (incentives, punishments, constraints).

The rules of the system define its scope, boundaries, degrees of freedom. Thou shalt not kill. Everyone has the right of free speech. Contracts are to be honored. The president serves four-year terms and cannot serve more than two of them. Nine people on a team, you have to touch every base, three strikes and you're out. If you get caught robbing a bank, you go to jail.

Mikhail Gorbachev came to power in the USSR and opened information flows (*glasnost*) and changed the economic rules (*perestroika*), and look what happened.

Constitutions are strong social rules. Physical laws such as the second law of thermodynamics are absolute rules, if we understand them correctly. Laws, punishments, incentives, and informal social agreements are progressively weaker rules.

To demonstrate the power of rules, I ask my students to imagine different ones for a college. Suppose the students graded the teachers. Suppose you come to college when you want to learn something, and you leave when you've learned it. Suppose professors were hired according to their ability to solve real-world problems, rather than to publish academic papers. Suppose a class got graded as a group, instead of as individuals.

Rules change behavior. Power over rules is real power.

That's why lobbyists congregate when Congress writes laws, and why the Supreme Court, which interprets and delineates the Constitution—the rules for writing the rules—has even more power than Congress.

If you want to understand the deepest malfunctions of systems, pay attention to the rules, and to who has power over them.

That's why my systems intuition was sending off alarm bells as the new world trade system was explained to me. It is a system with rules designed by corporations, run by corporations, for the benefit of corporations. Its rules exclude almost any feedback from other sectors of society. Most of its meetings are closed to the press (no information, no feedback). It forces nations into positive loops, competing with each other to weaken environmental and social safeguards in order to attract corporate investment.

It's a recipe for unleashing "success to the successful" loops.

3. The power of self-organization.

The most stunning thing living systems can do is to change themselves utterly by creating whole new structures and behaviors. In biological systems that power is called evolution. In human economies it's called technical advance or social revolution. In systems lingo it's called self-organization.

Self-organization means changing any aspect of a system lower on this list—

adding or deleting new physical structure, adding or deleting negative or positive loops or information flows or rules. The ability to self-organize is the strongest form of system resilience, the ability to survive change by changing.

The human immune system can develop responses to (some kinds of) insults it has never before encountered. The human brain can take in new information and pop out completely new thoughts.

Self-organization seems so wondrous that we tend to regard it as mysterious, miraculous. Economists often model technology as literal manna from heaven—coming from nowhere, costing nothing, increasing the productivity of an economy by some steady percent each year. For centuries people have regarded the spectacular variety of nature with the same awe. Only a divine creator could bring forth such a creation.

In fact the divine creator does not have to produce miracles. He, she, or it just has to write clever **RULES FOR SELF-ORGANIZATION**. These rules govern how, where, and what the system can add onto or subtract from itself under what conditions.

Self-organizing computer models demonstrate that delightful, mind-boggling patterns can evolve from simple evolutionary algorithms. (That need not mean that real-world algorithms are simple, only that they can be.) The genetic code that is the basis of all biological evolution contains just four letters, combined into words of three letters each. That code, and the rules for replicating and rearranging it, has spewed out an unimaginable variety of creatures.

Self-organization is basically a matter of evolutionary raw material—a stock of information from which to select possible patterns—and a means for testing them. For biological evolution the raw material is DNA, one source of variety is spontaneous mutation, and the testing mechanism is something like punctuated Darwinian selection. For technology the raw material is the body of understanding science has accumulated. The source of variety is human creativity (whatever THAT is) and the selection mechanism is whatever the market will reward or whatever governments and foundations will fund or whatever tickles the fancy of crazy inventors.

When you understand the power of self-organization, you begin to understand why biologists worship biodiversity even more than economists worship technology. The wildly varied stock of DNA, evolved and accumulated over billions of years, is the source of evolutionary potential, just as science libraries and labs and scientists are the source of technological potential. Allowing species to go extinct is a systems crime, just as randomly eliminating all copies of particular science journals, or particular kinds of scientists, would be.

The same could be said of human cultures, which are the store of behavioral repertoires accumulated over not billions, but hundreds of thousands of years. They are a stock out of which social evolution can arise. Unfortunately, people appreciate the evolutionary potential of cultures even less than they understand the potential of every genetic variation in ground squirrels. I guess that's because one aspect of almost every culture is a belief in the utter superiority of that culture.

Any system, biological, economic, or social, that scorns experimentation and wipes out the raw material of innovation is doomed over the long term on this highly variable planet.

The intervention point here is obvious but unpopular. Encouraging diversity means losing control. Let a thousand flowers bloom and **ANYTHING** could happen!

Who wants that?

2. The goals of the system.

Right there, the push for control, is an example of why the goal of a system is even more of a leverage point than the self-organizing ability of a system.

If the goal is to bring more and more of the world under the control of one central planning system (the empire of Genghis Khan, the world of Islam, the People's Republic of China, Wal-Mart, Disney), then everything further down the list, even self-organizing behavior, will be pressured or weakened to conform to that goal.

That's why I can't get into arguments about whether genetic engineering is a good or a bad thing. Like all technologies, it depends upon who is wielding it, with

what goal. The only thing one can say is that if corporations wield it for the purpose of generating marketable products, that is a very different goal, a different direction for evolution than anything the planet has seen so far.

There is a hierarchy of goals in systems. Most negative feedback loops have their own goals—to keep the bath water at the right level, to keep the room temperature comfortable, to keep inventories stocked at sufficient levels. They are small leverage points. The big leverage points are the goals of entire systems.

People within systems don't often recognize what whole-system goal they are serving. To make profits, most corporations would say, but that's just a rule, a necessary condition to stay in the game. What is the point of the game? To grow, to increase market share, to bring the world (customers, suppliers, regulators) more under the control of the corporation, so that its operations become ever more shielded from uncertainty. That's the goal of a cancer cell too and of every living population. It's only a bad one when it isn't countered by higher-level negative feedback loops with goals of keeping the system in balance. The goal of keeping the market competitive has to trump the goal of each corporation to eliminate its competitors. The goal of keeping populations in balance and evolving has to trump the goal of each population to commandeer all resources into its own metabolism.

I said a while back that changing the players in a system is a low-level intervention, as long as the players fit into the same old system. The exception to that rule is at the top, if a single player can change the system's goal.

I have watched in wonder as—only very occasionally—a new leader in an organization, from Dartmouth College to Nazi Germany, comes in, enunciates a new goal, and single-handedly changes the behavior of hundreds or thousands or millions of perfectly rational people.

That's what Ronald Reagan did. Not long before he came to office, a president could say, "Ask not what government can do for you, ask what you can do for the government," and no one even laughed. Reagan said the goal is not to get the people to help the government and not to get government to help the people, but to get the government off our backs. One can

There is a hierarchy of goals in systems. Most negative feedback loops have their own goals. . . . They are small leverage points. The big leverage points are the goals of entire systems.

PLACES TO INTERVENE IN A SYSTEM

argue, and I would, that larger system changes let him get away with that. But the thoroughness with which behavior in the US and even the world has been changed since Reagan is testimony to the high leverage of articulating, repeating, standing for, insisting upon new system goals.

1. The mindset or paradigm out of which the system arises.

Another of Jay Forrester's systems sayings goes: It doesn't matter how the tax law of a country is written. There is a shared idea in the minds of the society about what a "fair" distribution of the tax load is. Whatever the rules say, by fair means or foul, by complications, cheating, exemptions or deductions, by constant sniping at the rules, the actual distribution of taxes will push right up against the accepted idea of "fairness."

The shared idea in the minds of society, the great unstated assumptions—unstated because unnecessary to state; everyone knows them—constitute that society's deepest set of beliefs about how the world works. There is a difference between nouns and verbs. People who are paid less are worth less. Growth is good. Nature is a stock of resources to be converted to human purposes. Evolution stopped with the emergence of *Homo sapiens*. One can "own" land. Those are just a few of the paradigmatic assumptions of our culture, all of which utterly dumfounded people of other cultures.

Paradigms are the sources of systems. From them come goals, information flows, feedbacks, stocks, flows.

The ancient Egyptians built pyramids because they believed in an afterlife. We build skyscrapers, because we believe that space in downtown cities is enormously valuable. (Except for blighted spaces, often near the skyscrapers, which we believe are worthless.) Whether it was Copernicus and Kepler showing that the earth is not the center of the universe, or Einstein hypothesizing that matter and energy are

interchangeable, or Adam Smith postulating that the selfish actions of individual players in markets wonderfully accumulate to the common good.

People who manage to intervene in systems at the level of paradigm hit a leverage point that totally transforms systems.

You could say paradigms are harder to change than anything else about a system, and therefore this item should be lowest on the list, not the highest. But there's nothing physical or expensive or even slow about paradigm change. In a single individual it can happen in a millisecond. All it takes is a click in the mind, a new way of seeing. Of course individuals and societies do resist challenges to their paradigm harder than they resist any other kind of change.

So how do you change paradigms? Thomas Kuhn, who wrote the seminal book about the great paradigm shifts of science, has a lot to say about that. In a nutshell, you keep pointing at the anomalies and failures in the old paradigm, you come yourself, loudly, with assurance, from the new one, you insert people with the new paradigm in places of public visibility and power. You don't waste time with reactionaries; rather you work with active change agents and with the vast middle ground of people who are open-minded.

Systems folks would say one way to change a paradigm is to model a system, which takes you outside the system and forces you to see it whole. We say that

because our own paradigms have been changed that way.

2. The power to transcend paradigms.

Sorry, but to be truthful and complete, I have to add this kicker.

The highest leverage of all is to keep oneself unattached in the arena of paradigms, to realize that NO paradigm is "true," that even the one that sweetly shapes one's comfortable worldview is a tremendously limited understanding of an immense and amazing universe.

It is to "get" at a gut level the paradigm that there are paradigms, and to see that that itself is a paradigm, and to regard that whole realization as devastatingly funny. It is to let go into Not Knowing.

People who cling to paradigms (just about all of us) take one look at the spacious possibility that everything we think is guaranteed to be nonsense and pedal rapidly in the opposite direction. Surely there is no power, no control, not even a reason for being, much less acting, in the experience that there is no certainty in any worldview. But everyone who has managed to entertain that idea, for a moment or for a lifetime, has found it a basis for radical empowerment. If no paradigm is right, you can choose one that will help achieve your purpose. If you have no idea where to get a purpose, you can listen to the universe (or put in the name of your favorite deity here) and do his, her, its will, which is a lot better informed than your will.

It is in the space of mastery over paradigms that people throw off addictions, live in constant joy, bring down empires, get locked up or burned at the stake or crucified or shot, and have impacts that last for millennia.

Back from the sublime to the ridiculous, from enlightenment to caveats. There is so much that has to be said to qualify this list. It is tentative and its order is slithery. There are exceptions to every item on it. Having the list percolating in my subconscious for years has not transformed me into a Superwoman. I seem to spend my time running up and down the list, trying out leverage points wherever I can find them. The higher the leverage point, the more the system resists changing it—that's why societies rub out truly enlightened beings.

I don't think there are cheap tickets to system change. You have to work at it, whether that means rigorously analyzing a system or rigorously casting off paradigms. In the end, it seems that leverage has less to do with pushing levers than it does with disciplined thinking combined with strategically, profoundly, madly letting go. ⊕

Systems folks would say one way to change a paradigm is to model a system, which takes you outside the system and forces you to see it whole. We say that because our own paradigms have been changed that way.

RICHARD SENNETT



Authority

Authority

Richard Sennett.
1993; 206 pp. \$9.95,
Norton Books & Co.

You hate it and revel in it. You need it, brandish it, and defy it. This book is an intriguing look at the concept of authority from every imaginable angle. You must read it to become an authority on authority. —Insists J. Baldwin

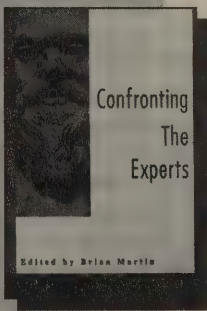
“ If you steadfastly refuse to credit him, even if he conquers our territory, he will not have conquered us. These exhortations Napoleon understood. It was why subversive thoughts about “the legitimacy of the Emperor” ranked high as acts of treason.

“ [Josip] Obradovic found that the workers who participated in self-managing bureaucracies were far more alienated from their jobs than workers in more traditional settings. The reason is self-evident. These participating workers were confronting the realities of domination built into any chain of command, no matter what its ideology, and that confrontation disturbed them. Co-determination is a worthy and dignified enterprise, but it shies away from bringing unresolvable conflicts in the chain of command to the forefront of discussion.

Confronting the Experts

Brian Martin, Editor. 1996; 204 pp.
\$14.95, SUNY Press.

In this often bitter book, reason and truth suffer when establishment experts use their authority to smother public debate. Six persistent, occasionally testy dissenters—who happen to be right—chronicle their frustrating battles with entrenched experts who were able to interrupt democratic process. The controversies include fluoridation, terrorism, sewage treatment (or lack of it), the methodology of biological studies, the pedigree of a famous painting, and a challenge to India's nuclear industry. It's an instructive, edge-of-your-seat read that may help you understand why change is so often difficult. —JB



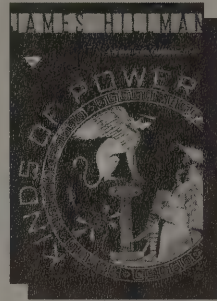
“ Only twice was I considered for appearance on television as a terrorism expert. In the first case, I was called by a representative of the Phil Donahue

Kinds of Power A Guide to Its Intelligent Uses

James Hillman. 1995; 260 pp.
\$22, Doubleday.

Power is one of the three uncool-but-essential topics to understand around organizations (the other two are rank-relationships and judgment). Hillman regards power as inevitable, legitimate, and at its best when handled with subtlety and complexity. He rightly blasts those who narrowly wield power-as-control, say, or power-as-efficiency.

Hillman is a polytheist, favoring the ancient Greek pantheon. He regards the old gods and goddesses as powerful ideas writ into complex characters, and those ideas continue to wrangle and decree within us and our organizations just as they did in the eternal soap opera on Mt. Olympus. Note, for instance, Hillman's



retelling of the tale of the futurist Cassandra: “If we don't know who is at work in an idea, we more easily get caught by its power. We become identified with that idea, defend it, fight for it, and soon we have become ideational fundamentalists. . . . Apollo wanted her and gave her the gift of prophetic insight by wetting her lips with his tongue. But she then refused his desire and so he gave her as well the curse that no one would believe what she saw so certainly. Although she could surely foretell what was to come, her warnings fell on unheeding ears. She could only tell the truth and was considered, by her fellow Trojans, insane.”

I like Hillman's writing. It's lucid and gritty, compassionate and harsh, probing to the meat of what matters. Read his chapter on Efficiency, for instance. —Stewart Brand, courtesy of the Global Business Network.

“ For action to be direct and single, thought must be diverse and plural.

“ The drama of business, its struggles, challenges, victories and defeats, forms the fundamental myth of our civilization, the story that explains the underlying bottom line of the ceremonies of our behavior.

“ If, for instance, I define power simply as “control,” I will never be able to let go of control without fear of losing power. Trapped by this concept into paranoid vigilance, competitive exertions and demonstrative leadership, I will never discover the subtle power of influence, authority, generosity or patient resistance.

Show, who wanted to see if I qualified for an appearance. She asked me what I would suggest the United States do about terrorism. I said that the first thing was for it to stop directly doing it and indirectly sponsoring it. This left her at a loss for words, and when our conversation ended I knew I was not going on the Donahue Show.

“ It works just the opposite in the West: conflict of interest accredits the expert because it demonstrates contacts, knowledge, and credentials. Bias is irrelevant if it is consistent with dominant mainstream opinion or reflects the opinion of very powerful people.



BILL BARKER, WORLD OPERATIONS MANUAL

Tools for Tradeswomen

Gaps and Adaptions to Blue Collar Life

Molly Martin, Kate Curry,
& Elizabeth Thompson

Occupational Health & Safety

Molly Martin: I think safety equipment is the worst thing. If you need a mask for example, you've got to have one that fits your face, and a lot of companies have tried to deal with that. The City [of San Francisco] has gone out and made sure they've found a manufacturer that made a mask that could fit women's faces.

Liz Thompson: I was wondering about safety harnesses. If you're welding up on top of a dome or a bridge, and the harness is too loose . . .

Kate Curry: Harnesses is a biggie. They're adjustable but, when I've used them, they're *never adjustable enough*. Even the seat belt on the back hoe—I can't get that thing tight enough to feel that secure, if I was to roll it or something.

LT: Do you have to jury-rig it, or do you just make do?

KC: I always make do. I just do it on the smallest size it has. And I'm confident in my own ability. I don't do anything that stupid, where I feel like I'm going to be really vulnerable.

MM: I think they make it for the biggest man. I know women who have trouble driving pickup trucks because their feet can't reach the pedals. My carpenter friend who is 5'2"—for years she just put little pieces of two-by-four on the pedals. That's how she dealt with it. Taped 'em on with duct tape.

I heard another one where there was an auto mechanic, and they told her she couldn't do the job because she wasn't tall enough, because they had to haul the cars up to a certain height and she couldn't reach them. Well, how did they figure it out? They got a ladder for her to stand on. Stuff like that—they say, "Sorry, you can't do the job," and it turns out there's a really simple way to deal with it.

KC: I don't think they were encouraging her to stick around.



SANDY THACKER, IF I HAD A HAMMER
SEE REVIEW P. 89.

Molly Martin is a long-time electrician and worker-activist. Today she's an electrical inspector for the City of San Francisco who likes to row when she's not on call or busy organizing. She helped found Tradeswomen, Inc., a national nonprofit organization for women in non-traditional blue collar work, and she is editor of their quarterly magazine, *Tradeswomen*. Molly also edited a book, *Hard-Hatted Women*—stories by women machinists, carpenters, plumbers, etc.

Kate Curry is in charge of operations at the sewage treatment facility in Bolinas, California. She's a skilled back hoe driver, and has also roofed buildings, cleaned teeth, and shingled houses. Kate's excited about the state-of-the-art polypropylene membrane microfiltration system being installed at the drinking water plant, and her fishing vacation in the north woods.

MM: These people from City of Berkeley called me up and said, "We're really trying to do affirmative action. We really want to get women in the trades. What can we do? Here are some of the basic requirements . . ." One of them was that you have to lift 100 pounds. Well, obviously what it is, it's a way to keep women out. And now they're trying to figure out why there aren't any women applying for their jobs.

Some of the things that we did in the early issues of *Tradeswomen* were a lot of health and safety articles. Showing how to lift, for example, which is not something that they ever teach you in the trades, that I know of. Have you ever seen that happen?

KC: No. I get these "Safe Work Practices," little flyers. And we have these safety videos.

LT: So, do these training videos or manuals ever say, for a job that does require a certain amount of physical strength, "Here's a routine you might use to get into shape," as in a sports fitness kind of model?

MM: We taught each other how to lift when we started working. The way I learned was being a weight lifter. Then you learn from coaches how you're supposed to do that stuff. But it's not something you ever learn in the trades, that I know of.

KC: The saying goes around, "The best friend to a bad back is a strong stomach." That's what I've always heard.

MM: Yeah, work on your abs. I was one of the few people I knew, when I worked in the trades, that didn't have a bad back. Every man I knew had a bad back.

LT: Do you find women get different repetitive stress, or other occupational injuries, than men? Either because of their different use of tools or because of the design of tools?

MM: Oh gosh, I don't think anyone knows. There's lots of carpal tunnel. And now repetitive strain injury is related to computer use. But there used to be, before that, a lot of tradeswomen who had problems with it. Though I think there must be a lot of tradesmen who do too.

We don't know [all the details], because nobody's really done any studies. It seemed to me for a while like women were experiencing a lot more carpal tunnel syndrome than, I thought, men were. But I don't talk to men in the trades as

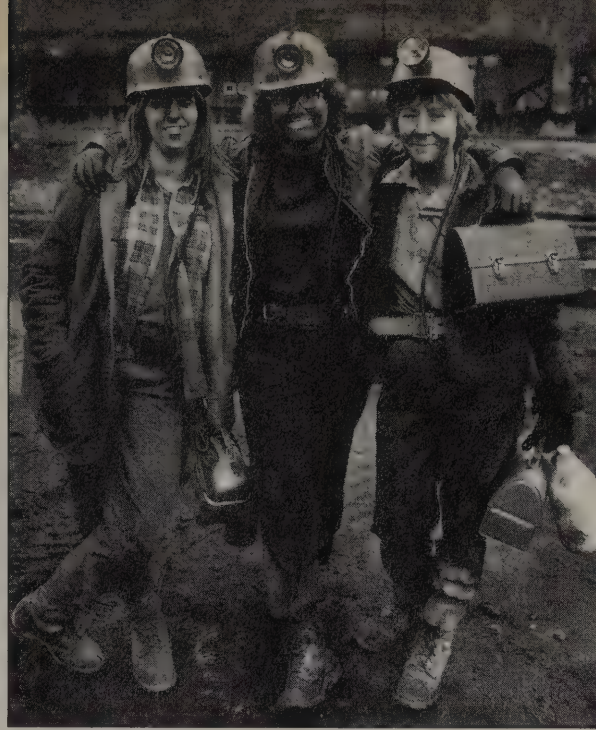


PHOTO BY EARL DOTTER

intimately as I talk to women in the trades. They might be experiencing a lot of things I don't even know about.

KC: How about tennis elbow?

MM: My carpenter friends definitely had

gotta hurry up and get together. Next thing I know I was face down in the gravel because I hadn't tied my shoes. I don't need that tight of an ankle support. So now I'm going with the slip-on. And steel toe. And they don't make that particular model in a woman's boot. So I end up getting a smaller man's boot.

LT: And that works all right for you?

KC: Yeah, it does, until they change the design a little bit. I'm a creature of habit. If it works, and I'm happy with it, I just continue going with the same thing. [Continues next page.]

Outfitting

LT: The only specialized women's tools we've found are women's gloves, women's boots, women's clothes.

KC: I wear Red Wings. But the style I like only comes in a men's boot. I got away from wearing those lace-ups. I went out of the house one morning and I thought, oh gosh, I

Left: Friends gather after work in the film, "Coalmining Women," from *Working Stiffs, Union Maids, Reds, and Riffraff* (see review, p. 89).

Hard-Hatted Women

Life on the Job

Molly Martin, Editor. Sandy Thacker, Photographer. 1988, 1997; 266 pp. \$14.95, Seal Press, Seattle.

Enlightening reading for any woman who has ever questioned her decision to enter "the tradies." For those of you considering such a career: read *Hard-Hatted Women*. It's as essential as choosing one's tools.

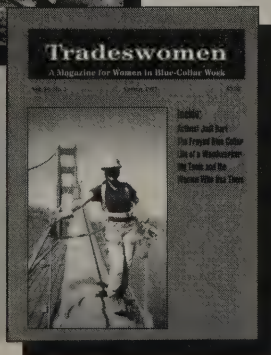
—Kate Curry

Tradeswomen

Molly Martin, Editor. \$35/year (4 issues), Tradeswomen, Inc., PO Box 2622, Berkeley, CA 94702; 510/433-1378, tradeswom@aol.com.

More people than just blue collar women will want to catch what's between *Tradeswomen's* covers: no-nonsense discussion of the joyful and ugly realities of modern trades work. This magazine gives the low-down on apprenticeships, equal opportunity legislation and enforcement, equal pay issues, nontraditional job fairs, union politics, and funding to train women and minorities in the skilled trades. And there is still room for unique art, poetry, and laughs.

It's a nationwide (sometimes global) who, what, and where of women paving, wiring, machining, writing, organizing, and driving toward fairness in the trades. It could be a major lever for every nontraditional worker's understanding and participation in the job behind the job. —ET



“An Indian tank is a water extinguisher with shoulder straps, with a pump nozzle on a two-foot hose. You wear it on your back to put out small grass fires, and to give yourself a backache, since it weighs over forty pounds when full and the metal rim digs into your hips. Its design criteria were not done by Kelty or Gregory.

I slid the tip of the nozzle into the opening of Soders' folded-down boot. He didn't notice. I squirted a stream of water into his boot. He jumped. “Son of a . . .”

By unwritten law, Soders owed me. He was entitled to get me back, and I was entitled to live in apprehension until he did. But Soders didn't feel free to get me back. You don't hit a girl. And

you don't accept an outsider into your circle as readily as I had assumed. I got away with it.

I didn't want to get away with it. —HARD-HATTED WOMEN

“Dear Sister Organization: For years the federal Equal Employment Opportunity Commission (EEOC) has had a regulation that allowed apprenticeship programs to be exempted from the Federal Age Discrimination in Employment Act (ADEA). . . . We're writing to let you know that this long standing exemption was rescinded. . . . The final rule will allow women and men over 40 the opportunity to apply for apprenticeship positions and to work in high wage, highly skilled, nontraditional jobs.

As advocates our job is not over. We may be the only community that is aware of the law change. We must inform our local apprenticeship programs and monitor them on any age discrimination practices.

Chicago Women in the Trades —TRADESWOMEN





ELEANOR WITT, TRADESWOMEN (SEE REVIEW, P. 87).

Above: Pam Hackett, co-owner of Hackett Deck Erection, Inc., a structural decking company in Denver, Colorado.

MM: I wore boots that were way too big on a construction project for months, in the rain. You put your socks in the end and just walk around. They were like size ten or something, and I was slogging around this job. They didn't have anything smaller.

KC: Yeah, not many men wear a size eight boot. Also, what I've noticed, when somebody would come up with, say, work boots that fit women, the price was twelve to fifteen percent higher. But there's the same amount of leather, probably less for a woman's foot. I never could figure that out.

MM: We [*Tradeswomen* magazine] used to do lots of stuff on

this, and it's been years, and I don't know if anything's changed. Did you ever hear about the business the woman runs that just sells construction work clothes for women? [See box.]

KC: I think the coveralls are the big one. I just cut 'em off and take 'em to a local seamstress and she hems them.

LT: How about rain gear?

KC: Oh, rain gear's way big.

I usually end up cutting the cuffs off and the sleeves off. I don't even hem them because it doesn't fray. They only last a season anyway.

What To Do When It's Been So Long?

LT: It's been years since women have been in the trades, right? And there's still this tool gap?

MM: Construction, it's been since about 1972.

I think they are getting lighter and more ergo-

nomical, just in general. But I don't know that anyone's designed anything specifically for women.

KC: I think, as far as tools go, you just come to a point where you adapt. The thing I've noticed is the handles on the tools, and performance—the job dictates that. But just the handling—I don't have that small of hands, but sometimes I have a heck of a time gripping something. I used to take a rasp and just shave some of the wood off the fat part of the handle there. And it worked pretty well because it reduced the size, and it also gave you something to grip. You know, sweaty palms. Sometimes those things get slippery. So that was kind of dual purpose.

MM: And they make hammers in all kinds of sizes, so you can always choose the next smaller.

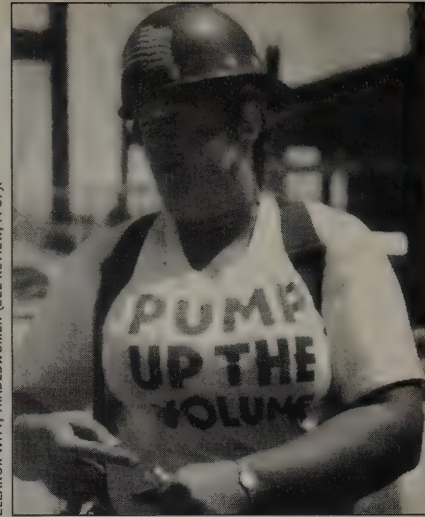
KC: They have finish hammers with nice little sizes, but I always noticed framing hammer handles are bigger.

MM: You know the fire department is always saying you have to be able to use those huge wooden ladders that they have. Well, I say, What do the Japanese do? You know, they have small fire fighters. Don't they have ladders that are better than this? But no, we have to lift *these* ladders.

KC: They're wood, huh? I thought they would be fiberglass. Not aluminum, but maybe fiberglass.

MM: Yes, I just spoke to a friend of mine who is a firefighter. They are wooden ladders. Why is that? I don't know.

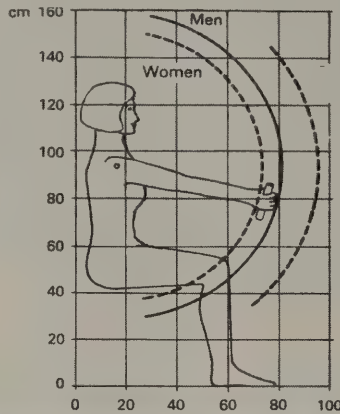
[Tools] used to be more of an issue at one time. It used to be that companies would come out with different



ELEANOR WITT, TRADESWOMEN (SEE REVIEW, P. 87).

Above: Robin Hackett, a third generation iron worker.

Left: Ergonomic diagram. What's wrong with this picture?



No Pink Toolboxes

Womanswork

PO Box 543, York, ME 03909; 800/639-2709; 207/363-0804, fax 207/363-0805.



Gloves that fit! Gloves that work and last! Lots of styles for all sorts of jobs are available, with an unconditional guarantee. **Womanswork** is owned by a woman who wants as much feedback as you can give her—about her gloves or any other tools or tool suppliers for women that you know about, all in the spirit of “strong women building a gentle world.”

Red Wing Shoe Company

Riverfront Centre, 314 Main Street, Red Wing, MN 55066-2337; 800/359-BOOT.



Some say they still need to swim in a man's boot to find the style and function they need, often at the sacrifice of a good fit. But **Red Wing** shelters the feet of more and more women who demand quality and comfort on the job. **Red Wing** doesn't have a mail order service, but they can help you locate the nearest store and they'll send you a catalog to browse. If you're really remote and really lucky, there are mobile units that can supply certain jobsites. They're usually

hired by sizeable companies, but **Red Wing** is an outfit that's willing to talk.

Women at Work Clothing Company

PO Box 117, Elm Street, Chester, VT 05143; 802/875-6474, fax 802/875-7024.



After “making do” with ill-fitting men's work clothes for seventeen years at a woodworking company, the owner of this shop decided to become the source for rugged pants, shirts, overalls, coveralls, jackets, and any other clothes a working woman could need. Her suppliers include Wells Lamont Gloves and Wolverine Boots, and Dickies and Carhart, who have new lines for women.

tools, and they'd be advertising, and I don't know that there was enough of a market. So we just end up adapting to our situation and doing the best we can. I did some research for my own needs, but after a while I just said, "You know what? Just make what you can get work."

Bodies in Balance

MM: We use our bodies to carry things differently on the job, to move things around. You might not be using any tools at all, but carpenters discovered early on that carrying things on their shoulders was not necessarily the best way. They put them on their hip. There are different ways of using our bodies. We have to develop those ourselves. No one ever teaches you to do things. You have to try to figure it out. A lot of women have figured it out. And some-



times you have to take shit for not doing it their way.

I remember a friend of mine who started out as a cabinet maker, which, believe it or not, was a really tough trade to get into in California. I think it still is. They really were very discriminatory toward women. She had a really hard time. But she talked about learning how to pick up a big sheet of plywood, this technique that she used. You have to use leverage, and know the planes it's on. There's a way to do it easier. You have to know the physics of it.

KC: You definitely don't want to do it in the wind. But you know what? Men come in various sizes too. So I don't think they're just unique to women, the problems. You just adapt. ⊕

THESE HIPS

Kate Braid

Some hips are made for bearing children, built like stools square and easy, right for the passage of birth.

Others are built like mine.

A child's head might never pass but load me up with two-by-fours and watch me bear.

When the men carry sacks of concrete they hold them high, like boys.

I bear mine low, like a girl on small, strong hips built for the birth of buildings.

—IF I HAD A HAMMER

If I Had a Hammer

Women's Work in Poetry, Fiction, and Photographs

Sandra Martz, Editor. 1990; 261 pp. \$11, Papier-Mache Press, 795 Via Manzana, Watsonville, CA 95076; 408/763-1420.

These are terrific tinglings of what it feels like to work: the aches and pains of the head, heart, and body. Along with that first glorious morning stretch, there's the satisfaction of a job well done (or just done), and the cold reward waiting in the fridge. Here's a book that'll give you fuel to get up and do it all over again. —ET



Working Stiffs, Union Maids, Reds, and Riffraff

An Organized Guide to Films about Labor

Tom Zaniello. 1996; 295 pp. \$18.95, ILR Press/Cornell University.

In 1970, I interviewed miners in Clay County, Kentucky who would not allow me to enter the mine. It's bad luck, they said. No woman can go in there. Nearly thirty years later, in Tom Zaniello's book, I find a film still of three smiling women, in miner's hats, faces black from coal dust. Working

Stiffs, Union Maids, Reds, and Riffraff can change how one sees the history of labor.

Compiling a guide to labor films demands a strategy of selection, and Zaniello clarifies his primary criterion early on: accessibility. He focuses on feature films rather than smaller, independent, difficult-to-obtain documentaries. Within these parameters, he gives us a broad and rich collection, including films that address some lesser known stories of labor and culture.

The collection is organized alphabetically, and thematically around subjects such as the auto industry, the African or Asian experiences in labor, and corruption in the unions. Each entry is accompanied by its date, ample credits, a synopsis of plot and relevant labor issues, and often the film's place within the larger politics of labor films.

Zaniello also has a small section of films for children. Working Stiffs is a wonderful compendium for classrooms and study groups to consider the politics of economics and human capital.

—Paula Levine



COALMINING WOMEN

"If you can't stand by my side, don't stand in my way." —Hazel Dickens.

1982, 40 mins., unrated but suitable for all ages. Director: Elizabeth Barret. Documentary. . . . Helen Lewis, narrator.

. . . Not surprisingly, safety issues are among the most important and recurring themes. One woman explains, as we watch her somewhat unconsciously moving her injured right arm with her good left hand, how dangerous operating a shuttle car can be. Another woman carefully tucks her long braid of hair into her jacket as she prepares to go underground.

The women also tell of harrassment both petty and grand. Barbara Angle, a coal miner from Maryland, sums it up this way: "It's basically the last locker room in the world. These guys take a lot of pride in what they do, and justifiably so. But it's hard for them to accept the fact that women can do the same work." The film shows women doing "the same work": securing the tunnel ceilings, laying bricks for ventilation barriers, and shoveling coal.

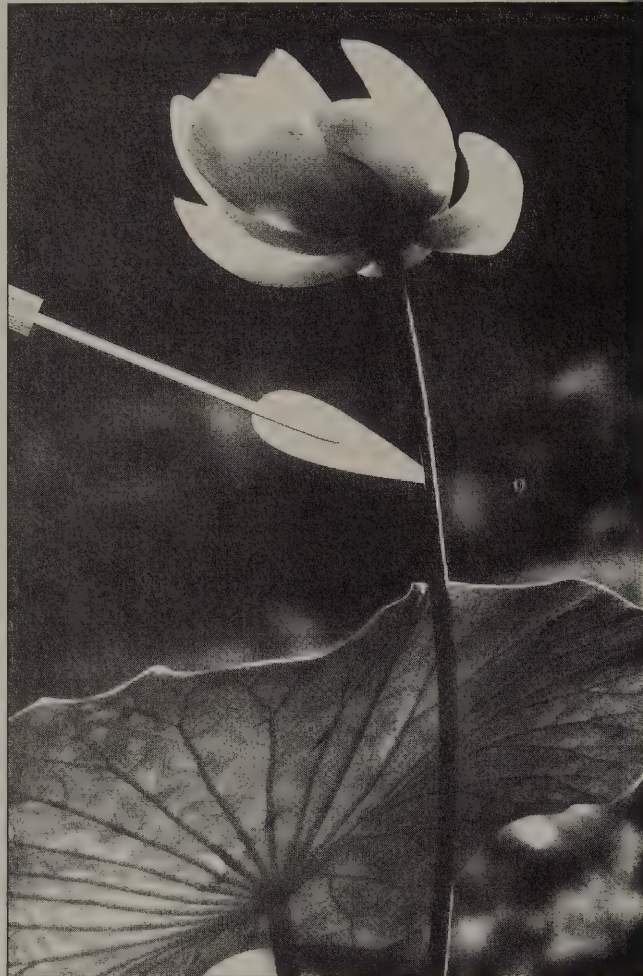
—WORKING STIFFS

Above, left: Womanswork full-bib apron (see review, p. 88).

Andrew Weil, MD

Any level of biological organization that we examine, from DNA up to the most complex body systems, shows the capacity for self-diagnosis, for removal of damaged structure, for regeneration of new structure.

Right: In ancient India, surgeons used lotus stems to practice swift incisions.



FLOWER COURTESY OF JEAN MOHR. KNIFE BY P. DOVERNAVY.

The biomedical model we have used for the past century has reached its limit of effectiveness. The word “healing” is not used in medicine today, with one exception. The first-year histology course includes some talk about wound healing. But outside of that, the word healing is not used in

bridge techno-modern medical science to the intelligence and intimacy of the longer “pre-modern” healing traditions. He has honed his own remarkable diagnostic and educational talents, along with a host of other intense enthusiasms (mushrooms, fireworks, wrestling). After twenty years of reviewing his writ-

ing, we are happy to say that we no longer need to introduce readers to his latest books (look for *Spontaneous Healing* and *Eight Weeks to Optimal Health* atop your local best-seller list). This article is from a 1996 speech to the Society for the History of Consciousness. —PW

medicine. One of the points that I made in *Spontaneous Healing* was to suggest that the human body has a healing system. Not a very radical idea. All you have to do is watch a cut finger heal to see very clearly that the body has a capacity for awareness of troubles and the mechanisms for repairing tissue. Yet it is discouraging to find that it's much easier to talk with children about the body's healing capacities than with most of my colleagues. If a kid gets an “owie” you say watch what happens. If you try to talk to most physicians about the body's system, it's easy for them to dismiss this as more New Age fluff. It is not New Age fluff; it is physiological reality. Any level of biological organization that we examine, from DNA up to the most complex body systems, shows the capacity for self-diagnosis, for removal of damaged structure, for regeneration of new structure.

Why are medical students never taught that the body has healing functions or healing systems? First, consider the great lopsided emphasis on disease processes rather than on health in the pre-clinical years of medical school. Second, when medical students get to their clinical years, they are seeing very sick people, hospitalized people, a population in which healing responses

occur less frequently than in the general population. If your whole world of illness is hospitalized patients, that tends to make you more pessimistic about possibilities of healing.

But there is a deeper problem here with the nature of western science and medicine in general. We are very locked into looking at the body as a set of structures and structural systems rather than functional systems. The healing system is not a structural system. I can't show you a slide of it, the way that I could show you a slide of the circulatory or digestive systems. In some cases, as with circulation and digestion, structure and function are relatively synonymous. But other cases, notably healing, demonstrate no neat correlation of a function with a set of body structures. The healing system makes use of all of the structural systems—the normal operations of the circulatory, nervous,

In the 1960s, Andy Weil belonged to a small group of students dedicated to Richard Evans Schultes at the Harvard Herbarium. Most were botanists or anthropologists. I believe Andy was the only pre-med student and I was the only primatologist. Beginning with those lessons in plant healing, Andy has worked to

Medicine

immune, and endocrine systems, and more, for its operations.

For a variety of cultural reasons, Chinese medicine developed along functional rather than structural lines. For one, it was unthinkable in traditional Chinese society to cut into a dead human body. So Chinese thinkers had to develop their system in the absence of detailed knowledge of internal structures of the human body. They focused instead on developing a science of functional relationships, spheres of function and their inter-relationships. One sphere identified very early was a defensive sphere concerned with self-protection against various kinds of environmental or internal threats. That concept led physicians to explore Nature to find ways to protect and enhance this function. An impressive array of remedies in the Chinese traditional pharmacopoeia are highly valued because they are believed to increase body defensiveness. This includes a number of species of mushrooms and some higher plants, which are very much prized as tonics to extend longevity, increase resistance of all kinds, make people generally healthier.

Note how recently, in western medicine, we identified and recognized the functions of some organs. We identified these as structures, but didn't know what they did. When I was at Harvard Medical School in the late 1960s, I was still taught that many of these organs were functionless. It requires an amazing degree of hubris to say that because you don't know the function of something, therefore it has no function, then to take it even one step further, and give surgeons license to take it out because it's just taking up space. When I was growing up, no one made it to adolescence with their tonsils and adenoids intact. Similarly, I know many patients, right up through the 1980s, who went into leading hospitals for abdominal surgery, a hysterectomy, or gall bladder removal, and did not find out until they got their hospital bills that their appendix had also been taken out, as a useless structure that could give trouble at some point. Physicians systematically destroyed young children's thymus glands throughout the 1950s in the belief that they were useless structures that got too big in childhood and adolescence and should be bombarded with X-rays to shrink them to normal size.

Meanwhile in the East, without any knowledge

of thymuses and appendices, tonsils and adenoids, Chinese doctors recognized a defensive function of the body and gained very practical information about how to strengthen it. The mushrooms and plants that the Chinese doctors have been using for hundreds, if not thousands, of years, now turn out actually to increase immune function. They are non-toxic, they increase phagocytosis, movement of macro phages, and various aspects of immune function. They are now a very hot item of research because they may be potentially useful for the treatment of AIDS and other chronic viral conditions that we can't manage in western medicine because we don't have technologic weapons. This is not to deny the importance of structural thinking, but more emphasis on function would make apparent the body's principle of self-organization, the ability to diagnose problems, repair damaged structure, and regenerate structure.

Remarkably, no systematic study has ever been made of healing. We have a phenomenon that we call "spontaneous remission" which is considered a curiosity with no particular explanation. When you talk to doctors and to most patients about spontaneous remission, they immediately think of cancer. Cancer is the worst place to look to understand the functions of the body's healing system because, very simply, in order for a malignant cell to survive all of the levels of defense that the body has for weeding out malignancy, and to get to the point of a clinically detected tumor, a long-term failure of the body's healing mechanisms has already occurred.

Cases of healing in cancer still occur, and are fascinating, but that's not the best place to understand the body's healing system. A much better place to look, for example, is autoimmunity. It is the nature of autoimmune diseases to go into periods of remission and exacerbation. Therapists and clinicians should be working on diseases like lupus and rheumatoid arthritis, because these have a natural tendency to go into remission.

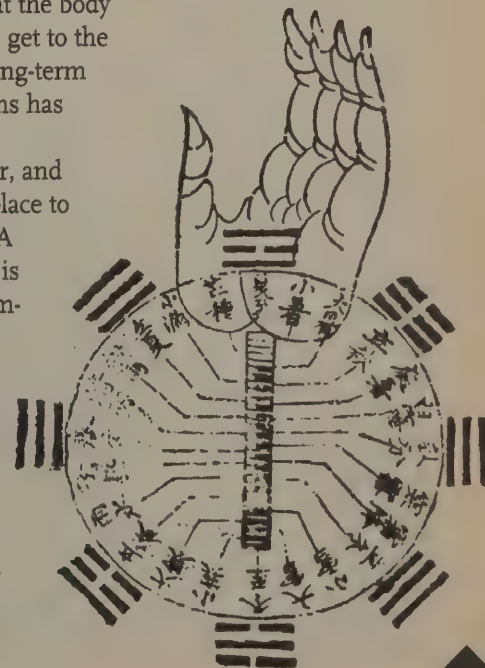
I would argue that most disease is self-limited. This is certainly my experience as a clinician and as a patient. This fact makes interpretation of thera-

經腸大明陽手



Above: One of the vessels or "meridians" of acupuncture. This one runs from the tip of a finger to the nose.

Below: Instructions for feeling the pulses during each of the year's 24 seasons, from the *Nei Ching*.



It requires an amazing degree of hubris to say that because you don't know the function of something, therefore it has no function, then to take it even one step further, and give surgeons license to take it out because it's just taking up space.

py very difficult. If most diseases end by themselves, then it may be that a great many practitioners, both conventional and unconventional, are taking credit for methods that have nothing to do with the outcomes. At any rate, I can think of nothing more important to study than how diseases end. Yet we have not done this in medicine. This is not a research priority. We don't collect these cases, we don't try to analyze them, we don't try to look for common factors.

Furthermore, one of the connections of the healing system is to consciousness. In many cases a healing response seems to have followed immediately upon some change at the level of consciousness. That does not prove that there is a cause-and-effect relationship but it certainly is suggestive. There is a danger, especially on the part of New Age therapists, of suggesting to patients that illness is *entirely* the result of people's emotions, or moods, for which they are responsible. A dangerous line of reasoning, this is often unhelpful and creates in the patients guilt which will, if anything, interfere with healing.

When I was in medical school, I asked many women of my grandmother's generation why they had breast cancer. The answers, 100 percent of the time, had to do with an old injury. Today we know of no association between trauma and breast cancer, but this was the idea then. Today, if you ask American women why they think they got breast cancer, they respond with formulations like, "I bottled up my feelings for all those years" or "I never expressed the rage I felt at my husband." That may have no more of a causal relationship with breast cancer than the idea that an injury caused it, but a cultural shift has happened. If you believe you get breast cancer because you fall against a table, that's

fate. But if you get breast cancer because you don't express feelings, then that's your fault. I am not suggesting that. I just point out that I have repeatedly seen healing responses, some very dramatic, immediately following some shift at the level of consciousness.

Some years ago I reported two cases of women in their thirties who came into my experience at the same time. They both had advanced cases of systemic lupuserythematosus. One woman was hospitalized and was not expected to live. Her kidneys and autoimmune process were severely impaired, and she had malignant hypertension, which could not be controlled by pharmaceutical agents. The other woman also had a lot of kidney and brain involvement. She had psychotic periods and her lupus was unresponsive to the strongest immunosuppressive drugs. The hospitalized woman had a conversion in the hospital to some variety of fundamentalist Christianity. The other woman fell in love and subsequently was married. To the astonishment of their doctors, both of them are now in permanent remission.

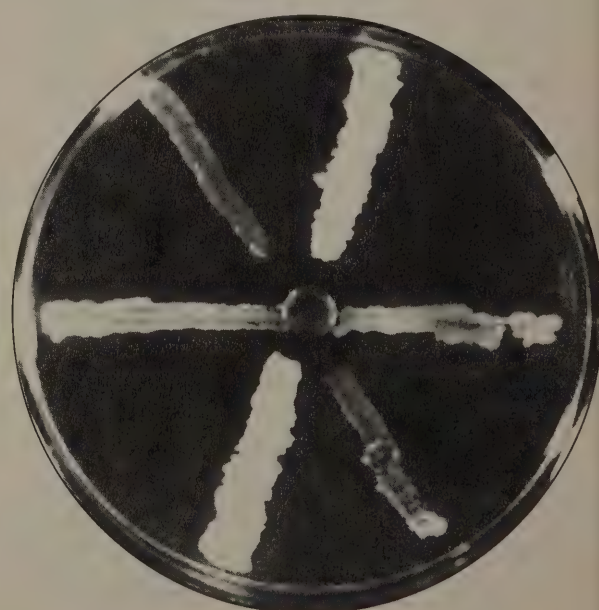
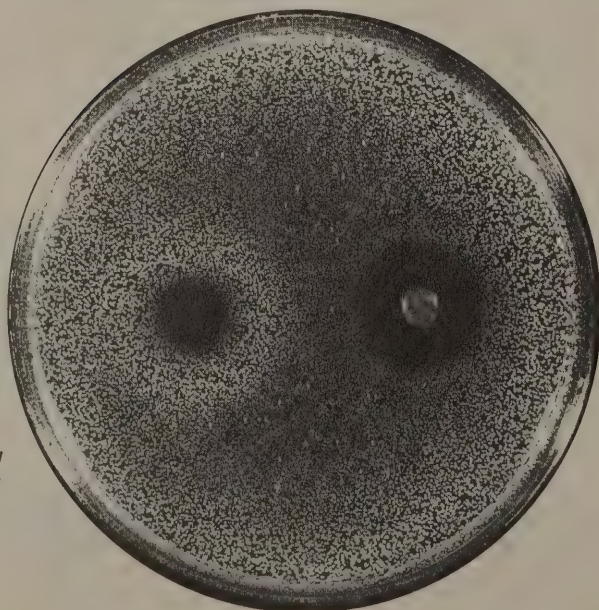
I cannot often arrange for my patients to fall in love or have religious conversions, but it's very important to note that possibility, even if you don't know how to make it happen. Something can be accessed there. I cannot tell you how many cases I've seen, mostly in men, who have had debilitating back pain to the point where they were told they had to have disc surgery. Their CAT scans and MRI scans looked awful. Nobody knew what to do to them, they were on immense amounts of pain medication. Then they fell in love and the back pain disappeared instantly. That's amazing! What happens? Is this just a matter of endorphins? I don't think so. I think there is something more going on,

EXPERIMENT BY DR. D. KECESSY, INSTITUTE OF HYGIENE, UNIVERSITY OF GENEVA.

EXPERIMENT BY DR. ELISABETH SCHORER AND MME. SYLVIE DERSI, UNIVERSITY OF GENEVA.

Near Right: The effects of two powdered copper ores (chrysocola, left, malachite, right) on bacterial growth. These pigments were used in Egypt for eye makeup—and, in likelihood—treatment of wounds and eye disease five thousand years ago.

Far Right: Antibiotic effects of myrrh, used in Egypt for treatment of battle casualties. After incubation for twenty-four hours, two of three species of bacteria failed to grow in the vicinity of a myrrh suspension.



and it certainly behooves us to direct our research attention to it.

I have reported many things done by people in different cultures to get rid of cutaneous warts. Most interestingly, there is no unity to what people do. Treatment ranges from rubbing a wart with a cut potato and burying the potato under a particular kind of tree during a particular phase of the moon, to being touched by the neighborhood wart healer, to selling your wart to your sibling. These actions seemingly have nothing in common, but people will do them, with two types of response. Some do it in the evening, and the next morning they touch the wart and it falls off and doesn't grow back. Equally common is to do one of these procedures and over the next two to three weeks the wart shrivels up, goes away, and doesn't grow back.

In allopathic medicine, we burn warts off with an electric spark or freeze them with liquid nitrogen, or use an acid that is so corrosive that you have to be very careful not to get it on normal skin. When we apply these methods to warts, in better than fifty percent of the instances the warts grow back, usually in multiple clusters. This is a model for how allopathic medicine has evolved. We approach many problems with the same crudity that we approach cutaneous warts, and with not much better success, while we ignore the possibility that there is a very precise innate healing mechanism that can be activated through the level of consciousness.

Stories about wart cures are told sometimes by doctors as examples of patients' gullibility. One doctor told me that he had a patient at a rural hospital in South Dakota who had warts all over his body. They had been burned off repeatedly and had always regrown multiply. Finally, on a whim one day, the doctor and a colleague told the guy that they had a new form of radiation that could make warts go away. They had him stand in a darkened X-ray room while they made the machine hum for thirty seconds. The next day the warts fell off all over his body and didn't grow back. But this story was told as an example of how you can really put things over on patients, rather than seeing it as a marvelous example of how the body's healing machinery can be accessed through the level of belief. We don't take these things seriously in our medical teaching and research and practice because they don't fit our conceptions.

One other anomaly: our culture manifests an epidemic of multiple personality disorders. When I was in medical school, multiple personality was so rare that if you ever got a case of it, you were guaranteed publication in a psychiatric journal. Now, everyone is seeing cases of multiple personality, and people have far more personalities than they



The Four Temperaments, from a German calendar, about 1480.

used to in the past . . . thirty, forty personalities. One of the most interesting aspects is physiological differences between the personalities. One woman with a violent allergy to citrus gets giant hives on consuming citrus, but one of her personalities is not allergic. If that personality can emerge within fifteen minutes of consuming a citrus fruit, there is no allergic response. We have seen reports of insulin-dependent diabetics with different insulin requirements for different personalities. A woman with multiple personality was studied by a friend of mine. They were having dinner together. They had wine with dinner, they had a before-dinner drink and she ordered an after-dinner drink, and he said "You know, we have to drive home" and she said, "Don't worry, I'm not the one who is going to be driving."

This is easily researchable. Apparently, it doesn't matter how multiple personality disorder is explained, or whether or not it is "real"; the brain is the hardware of the system and you can run different software through it and come out with very different results. What a wonderful thing to know in clinical medicine. These people, if you could get them together, could be fabulous teachers, fabulous people to have as your allies as a doctor, to teach patients with allergies or with various conditions how to modify their physiology. That would be a wonderful thing, but we'll never know that if we don't research these things, if we don't take them seriously, if we don't adjust our view of the body and of illness to take account of consciousness. ⊕

Program in Integrative Medicine

Tracy W. Gaudet, M.D., the University of Arizona College of Medicine, P.O. Box 245153, Tucson, AZ 85724-5153; 520/615-8678; fax 520/626-6484.

This new program, directed by Andrew Weil, seeks to combine the best of conventional and alternative medicine into cost-effective treatments that stimulate the body's natural healing potential. The program, intentionally based in an established allopathic teaching institution, offers two courses of study: a two-year post-graduate fellowship program for M.D.'s and D.O.'s who have completed residencies, and a continuing education program for physicians and other health-care providers. It is also developing a long-term research agenda.

Curriculum topics:
 Healing-Oriented Medicine
 Philosophy of Science
 Art of Medicine
 Medicine and Culture
 Research Education
 Mind/Body Medicine
 Spirituality and Medicine
 Nutritional Medicine
 Phytomedicine
 Energy Medicine
 Lifestyle Medicine
 Medicine and Institutions

Therapeutic Modalities:
 Guided Imagery and
 Hypno-therapy
 Acupuncture
 Basic Homeopathy
 Osteopathic Manipulative
 Therapy

The Essential Book Of Traditional Chinese Medicine

Liu Yanchi, Ed. 1988, 1995;
Vol. I, 305 pp. \$16.50, Vol. II,
479 pp. \$18, Columbia
University Press.

Finally a book that lives up to its name. These books are an incredibly information-rich, exquisitely articulated perspective on the human experience from the paradigm of Oriental medicine. Each person is a microcosmic reflection of the macrocosmic

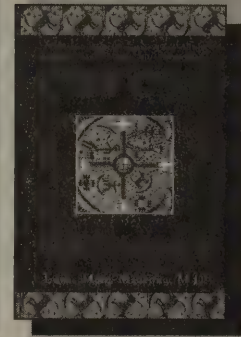
Universe, governed by interrelated and interdependent systems of opposing and controlling energies. Volume I explores theories of the relationships predominant in the creation of balance and wellness, supported beautifully with clear and concise figures and tables. Volume II is a more nuts-and-bolts practitioner guide covering acupuncture and herbal prescription therapies for a wide variety of treatments, from lower back pain and viral hepatitis to menopause and uterine hemorrhaging. This book is a "must have" encyclopedia reference for Chinese medicine practitioners and students alike.

—Cindy Cosgrove

Coyote Medicine

Lewis Mehl-Madrona. 1997; 299 pp.
\$24, Scribner.

Lewis Mehl-Madrona has much to offer, since he combines the heritage and experience of a Native American healer with very thorough training in conventional allopathic medicine. On top of that, he has great



passion about replacing the reigning biomedical model with a new paradigm, and he is a good writer.

Coyote Medicine is not just medicine of the past, of cultures that are fading. It is also medicine of the future that must be taught in medical schools, practiced in clinics, and brought to all those who seek true health. —Andrew Weil

“The theory of the five elements is this: All systems—objects or phenomena—have structural qualities that interact with each other. This interaction produces a constant state of internal motion, the pattern of which is predictable. All systems in the universe have the same structural qualities and follow the same pattern of motion. Hence, it is possible to use analogy to understand any system; that is, it is possible to use the obvious qualities of one system to describe the less obvious or hidden qualities of another.

wound with your urine, pulls the edges together with safety pins, and suggests that you lick the damaged flesh regularly to keep it moist as it heals. . . . He claims he has just saved your life.

“Perhaps because of the inexact contraceptive results of breast-feeding, the emotional and moral costs of infanticide, and the male control of coitus interruptus, special forms of female contraception were also developed in the distant past. Ancient Egyptian medical papyri prescribed pessaries, or suppositories, made of crocodile dung, plant fiber, and fermented dough to be placed in the vagina blocking the cervix. The ancient Greeks used tufts of wool, the Hebrews absorbent cotton, the Arabs vegetable pulps, the Japanese and Chinese disks of oiled silk paper, and the Europeans of the 1700s natural sea sponges. Mushroom-shaped stem pessaries made of gold, silver, wood, or ivory were used to support or “plug” the cervix in nineteenth-century Europe and America. In the past hundred years the natives of Central Africa have made pessaries of grass, while poor women of the southern United States have resorted to red clay.

“Looking within a chronically ill person’s soul and finding the healing resources hidden there can be a little like stealing fire from the gods. Sometimes the coping mechanisms we have learned to deal with an illness end up keeping us sick. People develop habits that nurture and maintain illness. Since, when we are sick, these habits seem helpful, we become extremely reluctant to change them. Often these habits help us manage and contain otherwise unbearable emotion. But if a healer can steal, like Coyote, past a habit’s “defenses” (the monsters guarding the fire), he or she might find something that can be used to support the healing process.

“I believe illnesses have spirits. You learn the spirit as you spend time working with it. . . . The spirit of AIDS is one of despair. Many will know this or that person with AIDS who is a fighter, and not despairing. I must be clear that I am referring to the spirit of AIDS itself and not the people it possesses. The spirit attaches itself differently to different personalities. The Québécois have a saying about unfamiliar beasts, *Q'est-ce qu'il mange en hiver*—What does it eat in winter? Find out, and the beast won't seem so mysterious. Likewise, to know the spirit of AIDS, we must spend hours with its victims; we must stalk the virus, studying its habits and its ways.

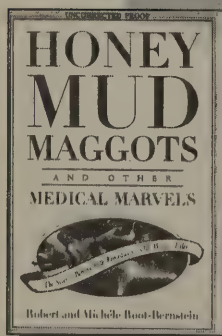


Honey, Mud, Maggots, and Other Medical Marvels

The Science Behind Folk Remedies and Old Wives' Tales

Robert and Michèle Root-Berstein. 1997;
270 pp. \$24, Houghton Mifflin.

Serious medical authorities like to say, “Modern research often reveals the basis for supposedly outdated ideas.” Here they are: maggots placed in wounds in contemporary hospitals to clean serious infections; honey in wounds and on burns as an antibiotic; clay consumption prescribed for nutrition; bloodletting that benefits the donor. Interesting stuff, Dr. Andy Weil told us when recommending this book. Definitely the best read since Majno’s *The Healing Hand* and Siegrist’s *A History of Medicine*. —PW



“Perhaps the group you’re traveling with has had a car accident out in the desert. You have no medical supplies, not even water to drink. . . . You have sustained a deep cut that would normally require stitches. Fortunately a medical intern is with you. He cleanses the

Kava, The Pacific Elixir

The Definitive Guide to Its Ethnobotany, History, and Chemistry

Vincet Lebot, Mark Merlin & Lamont Lindstrom. 1992, 1997; 255 pp. \$19.95 (\$22.95 postpaid), Healing Arts Press.

Kava

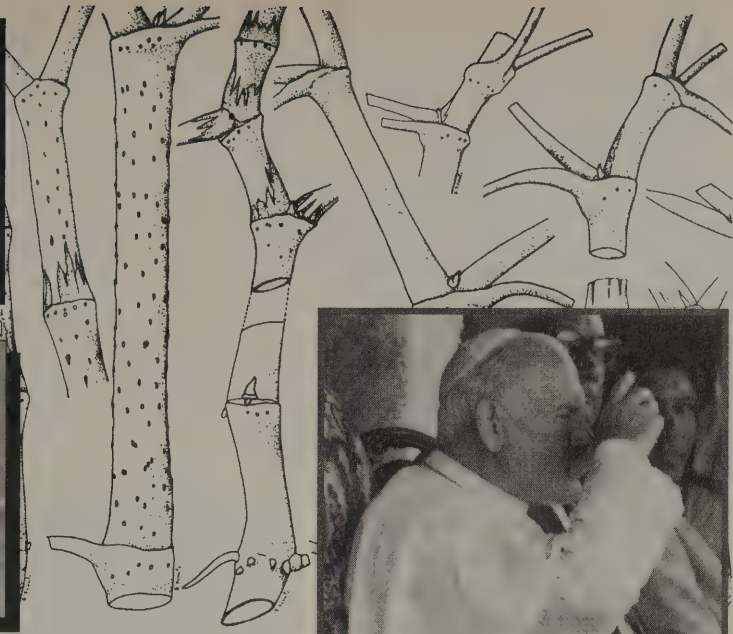
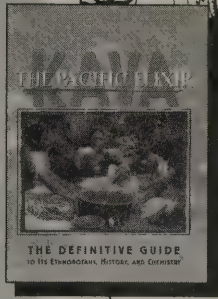
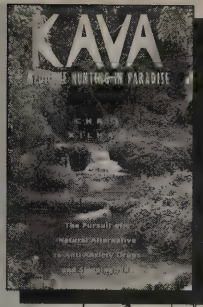
Medicine Hunting in Paradise

Chris Kilham. 1996; 166 pp. \$12.95 (\$15.95 postpaid), Park Street Press.

Kava, the Pacific Elixir is a reprint from Yale University Press's excellent series, "Psychoactive Plants of the World," edited by Richard Evans Schultes and Robert F. Raffauf, and it maintains the high standards set by Johannes Wilbert's *Tobacco and Shamanism in South America*. This book covers the botany, chemistry, pharmacology, ethnobotany, anthropology, and economics of kava—technical, thorough, highly recommended.

I opened *Kava: Medicine Hunting in Paradise* with much skepticism: the "book" on kava is *The Pacific Elixir*. When, on page eleven, Chris Kilham pays highest homage to that fine academic work, my interest perked up. He'd done his homework. Kilham did more than that—he went to Vanuatu, probably the center of dispersion for the kava plant. His story is part ethnobotany, and part travelogue, including a description of a fairly hairy ride in an open skiff through some high seas. Kilham builds a strong case for kava's potential for relieving anxiety and insomnia. Even before I finished the book I dug into my herb locker, pulled out the kava root, and started grinding. I had a wonderful evening.

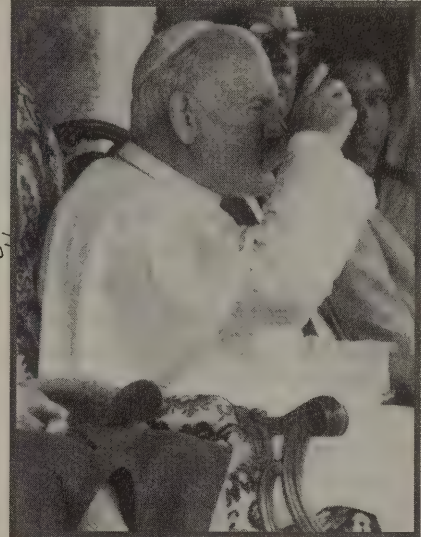
—Dale Pendell



its physiological effect, the kava domestication process can be described as a progression of clone selections.

—KAVA, THE PACIFIC ELIXIR

“While there are many cultivars of kava throughout the islands, some, such as the Palisi and Palarasul of Santo Island, are more highly prized than others. Upon chemical analysis, these varieties prove to contain higher quantities of kavalactones, preferred ratios of certain kavalactones one to another, or both. Thus every island has its favorite varieties. Some are for everyday drinking, and some particularly strong varieties are for special occasions. —KAVA: MEDICINE HUNTING IN PARADISE



Pope John Paul II drinking a coconut shell of kava in Fiji.

—Kava: Medicine Hunting in Paradise

“I felt like a helium-filled balloon that had been released from its tether. I floated in a broad, vast space of peace and equanimity, my mind calm and at ease, my body deliciously warm and loose. My face was utterly relaxed, as though it had been massaged for an hour. The muscles of my body felt as supple as they ever have, and I would have been content to just sit there all night. —KAVA: MEDICINE HUNTING IN PARADISE

“The genealogy of kava clones, from the wild species to today's cultivars, is primarily a lineage of chemotypes. Although the production of secondary metabolites (e.g., alkaloids and kavalactones) in many plants has been linked to protection against herbivores, mammalian herbivores (apart from fruit bats) were introduced to the noncontinental Pacific islands by humans. As has been noted, rats, pigs, and insects are not repelled by kavalactones. The evolution of kava's diverse chemotypes appears to have resulted not from natural selection but from human efforts to mold the plant's psychoactive characteristics. Distinct relationships exist between specific chemotypes and their traditional uses. Because a selection is made each time a farmer uproots an individual plant and experiments with



Somoan *taupou* (ceremonial virgin) prepares kava. —Kava, the Pacific Elixir

Snakes

The Evolution of Mystery in Nature

Harry W. Greene, photographs by Michael and Patrician Fogden. 1997; 351 pp. \$45, University of California Press.



Harry Greene has created the best-written and most beautiful book ever on snakes. More than 2,700 species of snakes currently share the earth with the rest of its biota. They and their ancestors have had a profound impact on the evolution of primate psyches—visit a zoo reptile house and watch the primates. —Wade Sherbrooke

When I spotted Wade in Portal, Arizona, he said over the fence, “If

someone doesn’t like snakes after reading Greene, they’re hopeless.” I couldn’t agree more. —PW

“As for the serpents themselves, we still can’t say what it’s like to actually be a Black-tailed Rattlesnake, much less a little Ridgenose. I must go farther and closer.

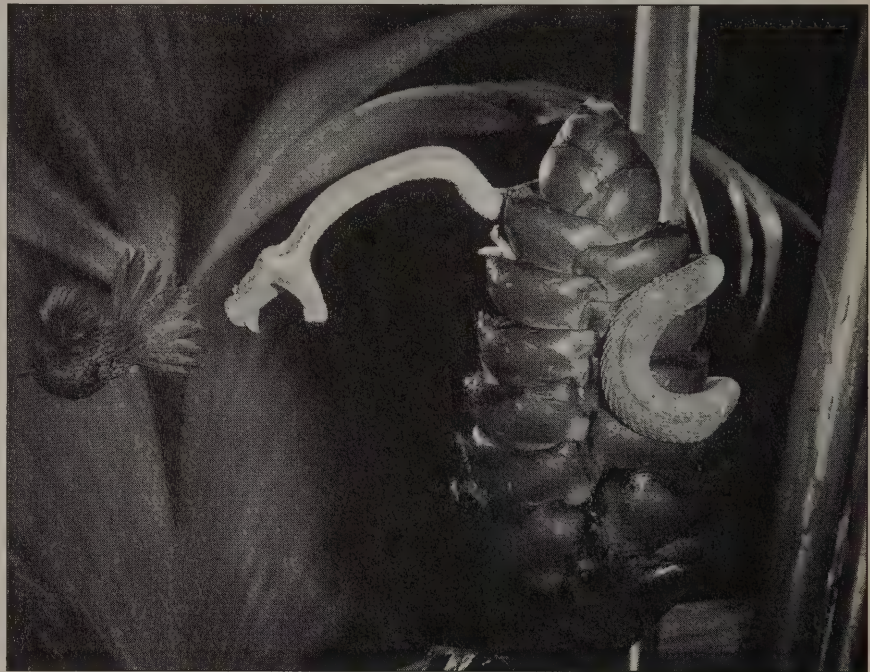
“Of course, art is in the eye of the beholder, so why should others appreciate serpents, especially venomous species? Snakes are natural puzzles, suggestive of things that haunt and inspire us; they have laconic expressions, subtle at best, with lidless eyes once dubbed “peep-holes into hell.” Snakes flow unhindered, as if free of friction or other restraint and thus beyond our control. . . . Snakes are sinuous, supple eroticism exaggerated by

paired, intricately ornamented sex organs. Their social behavior relies largely on tactile and chemical signals; it’s as if I were blindfolded in an Andean marketplace yet able to distinguish dozens of friends amidst overripe fruit, roasted corn, urine in the gutters, and a seething mass of damp wool ponchos.

“Prejudices evaporate as my students come to see rattlesnakes as an accumulation of special adaptations to their environment. Like all snakes, rattlers flow over the ground without limbs; as

vipers, rattlesnakes are uniquely able to subdue, swallow, and digest up to a third or more of their annual energy needs in a single prodigious meal. Like all snakes, they rely heavily on chemical signals in hunting for prey and locating mates; as pit vipers, rattlesnakes see the world in a unique mixture of infrared images and more typical vertebrate vision. Finally, blessed with their rattle and a special tail-shaker muscle, these creatures possess one of the most dramatic warning devices in all of nature.

Right:
Eyelash
Pitviper, Costa
Rica, striking
from ambush
at a Rufous-
tailed
Hummingbird.



Right:
Double-
banded Coral-
snake Mimic,
Costa Rica,
swallowing a
Northern Cat-
eyed Snake
tail-first.





Rattlesnake First Aids

Recently, a neighbor, bitten on the foot, went to the nearest Tucson hospital. You'd think that St. Mary's would know what to do. No doctor showed any real experience (were they reading *Merck Manuals* in the hall?) They tested her with a horse-serum-based anti-venom and

ground the herb in a coffee grinder and boiled it in water to produce a hot bath for her foot. Twenty minutes of immersion immediately reduced the swelling and started a long (still painful) healing.

Dr. Andy Weil then told me about Dr. Ronald Guderian in Ecuador and outbackers in Australia using stun guns for snake bites (before stun guns, they used car battery jumping cables plus a screwdriver). He also found a study by Dr. Carl Osborn on treating brown recluse spider

unhinges the venom because the body is negatively charged and venom holds a positive charge. Best results for snake bites appear by jump-starting the bite within twenty minutes of evenomation, shocking with no less than 20,000 volts (up to 45,000), low amperage DC current. The technique is highly controversial, with doctor debates galore. Dr. Jude McNally, Assistant Director of the Arizona Poison and Drug Information Center (an outstanding community service group) suggests that the "cures" following electrotherapy may be among the fifty percent of all rattlesnake bites not severe enough to require or warrant aggressive treatment.

(Rattlesnakes, remarkably, can control the amount of venom they inject.) "If you put a dead chicken on the bite, you will get a living testimonial that dead-chicken treatment is followed by a rapid cure." The FDA has not approved this technique, any more than it has *hierba del manso*. Various articles warn: **AC (from the house socket) can cause a heart attack! Never apply AC to your body! Be sure that the voltage is less than 45,000 per shock! Never have your friend leave the stun-gun going in one spot.** Tetanus update and antibiotics are always prescribed.

You cannot carry anti-venom into the outback. The stun gun and/or the Sawyer Extractor (a kind of suction

cup to remove some of the venom) remain the only portable techniques. Most books say "Avoid trauma and go see a doctor." My experience is that hospitals can be as traumatic as a couple of jolts. I'm sure there are people who have loved buzz worm first aid in hospitals. I just haven't met them. Now, ranch operator Seth Hadley (Cloverdale, New Mexico) tells me about Crotab, an anti-venom vaccine now being tested that is based on sheep, not horse, serum, with a new purification process. Questions of dosage and timing remain experimental. So far, Crotab's not available, but appears to be mod-medicine's best response to *hierba del manso*, stun gun, and Sawyer suck. —PW and MKS

Stun Gun and Herbal Access

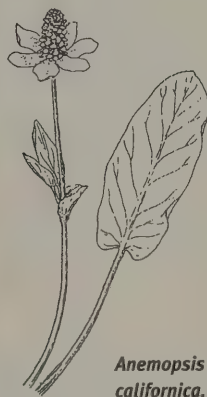
Stun guns vary, and in some locales are verboten. It must produce more than 20,000 but less than 50,000 volts (typical stun guns put out 100,000 - 200,000 volts). Low-volt stun guns may need special ordering or weak batteries. We have no experience on which to judge suppliers, but BSG Enterprises, 800/930-9365 says it can obtain low-voltage guns.

Hierba del manso: Flores Nacional, 4550 South 12th Avenue, Tucson, AZ 85714 (520/294-4505).

Japanese cabaret artist, Miss Ongawa, inserts the tail of a living snake into her nostril and regurgitates it through her mouth.



PAUL POPPER LTD.



Anemopsis californica.

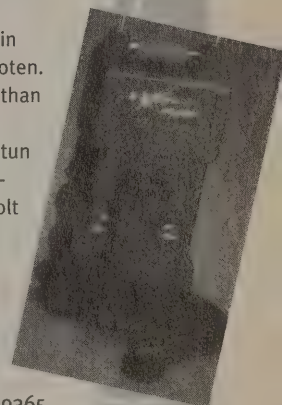
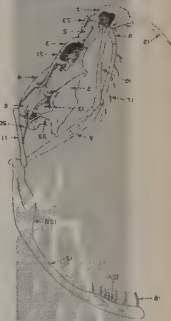
she appeared tolerant until large doses were injected. Serum sickness erupted. (Eighty-five percent of people treated with horse serum are "hypersensitive.") They did nothing to prevent deep infection, despite our requests, and her foot became hugely edemic (the size of a football), staph boils endlessly leaking. Finally, we went to South Tucson, figuring that Mexican-Indio culture had been around rattlers long enough. The *herbaria* sported rattlesnake skins, prepared skeletons, rattles, and an incredibly knowledgeable pharmacist who sold us, for \$18, a bag of *hierba del manso* (*Anemopsis californica*), a root collected in saline soils throughout Sonora. We

bites in Oklahoma with controlled shocks. Besides halting symptoms, the shock stopped pain within fifteen minutes to half an hour. The current may denature the proteins; some believe it



RADIO TIMES HULTON PICTURE LIBRARY

TOOL KIT



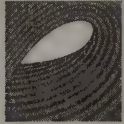
Right: A Burmese snake-charmer ritually kisses a king cobra.

Surfers form a healing circle to discuss the status of the Malibu lagoon and beach, and ways to make them better.

Surfrider Foundation

122 South El Camino Real, Box 67, San Clemente, CA 92672; 714/492-8170 fax 714/492-8142, srfrider@cerf.net, www.surfrider.org

Surfrider Foundation's thirty-five US chapters and affiliates on four continents work to protect and enhance the world's waves and beaches through conservation, activism, education and research. Teams of surfing scientists and surfing lawyers, linked on the Internet, combat the depredations of industrialism and urban sprawl. You don't have to own a surfboard to become a Surfrider! —Joshua Karliner



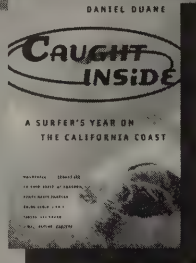
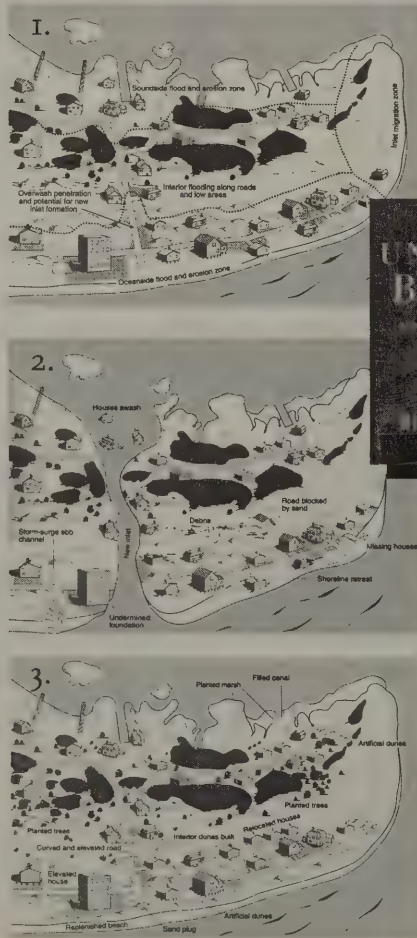
SURFRIDER FOUNDATION



The Shoresaver's Handbook

A Citizens' Guide. Tucker Coombe. 1996. 138 pp. \$12.95, Lyons & Burford. A handy directory to laws, organizations, and effective action programs to protect and restore the health of our coasts and nearshore waters. —Rasa Gustaitas

(1) An island, showing areas of risk for property damage. (2) Possible results of a major storm without damage mitigation actions: a new inlet has formed, the shoreline retreated, and some houses have disappeared. (3) Alternative: artificial dunes along the beach and interior dunes rebuilt. Roads are curved and run over and around, not through, dunes. New forest has been planted. —LIVING BY THE RULES OF THE SEA.



Caught Inside

A Surfer's Year on the California Coast

Daniel Duane. 1996; 239 pp. \$12, North Point Press.

This lyrical work captures the spiritual essence, art, and lifestyle of surfing by taking us deep into the vibrant, turbulent, but often stunningly serene natural world where ocean meets land.

Caught Inside offers the keen eye (and pen) of a naturalist consumed by his environment, with the knack of an historian for plumbing tales of waves from centuries past, and a pure passion for riding the ocean's energy. Compelling, even for those of us who would rather be surfing than reading a book. —JK

Waves are, after all, forms moving through mass, bundles of energy expressed as curves: when a curve can't

The Universe Below

Discovering the Secrets of the Deep Sea

William J. Broad. 1997; 432 pp. \$30, Simon & Schuster.

This fast-moving history of deep ocean exploration enlarged my personal world by demonstrating vividly that we inhabit a water planet we have barely begun to explore. It's a lively and well-researched account of nuclear warheads lost and

(sometimes) retrieved, amazing creatures newly discovered, research made possible by liberated war technology, and already-begun exploitation of deep-ocean life. Intriguing and vital information, clear and concise. I could not put the book down. —RG

The advances of the centuries, in which regular probings began at twenty fathoms and eventually extended down to the seas' deepest fissures, produced no discovery more important than the fact that the sea is a continuous habitat from top to bottom.

maintain shape because of a shoaling sandbar, its energy bunches higher and tighter until it reaches up over itself, remaking the wave form by pushing water out to close the curve; expressing the original arc, but with a hollow, spinning core. In which the surfer stands. The climber never quite penetrates the mountain, the hiker remains trapped in the visual

prison, but the surfer physically penetrates the heart of the ocean's energy—and this is in no sense sentimentality—stands wet in its substance, pushed by its drive inside the kinetic vortex. . . . Until someone figures out how to ride sound or light, surfing will remain the only way to ride energy.

As I walked alone down the road, there in the din of the sea was the local harrier, the marsh hawk, yet again hunting the bulrushes and arroyo willows of the little gulch, solitary soarer among societies of scavenging gulls and diving, amorous auks. For hours, days, years, a lifetime: down the hill, over the reeds, up the mustard of the other side, then low again over the minilagoon—tending his fields. I often wondered if he ever just forgot his prey and went on banking these hills for sheer pleasure.

Living by the Rules of the Sea

David M. Bush, Orrin H. Pilkey Jr., and William J. Neal. 1996; 179 pp. \$18.95, Duke University Press.

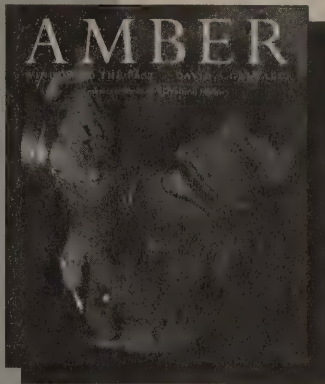
Manmade disasters devastate coastal communities because people build in ignorance or defiance of coastal processes. This manual explains how that can be avoided, with ample photographs and good diagrams. Especially useful to property owners and coastal dwellers along the gently sloping Atlantic and Gulf coasts and barrier islands, but much less so on the collision coast of the western states. —RG

Nature is not subtle in trying to teach us of the dangers of coastal living. Every hurricane and northeaster . . . is a lesson that we should be living by the rules of the sea. We must recognize the principles from these lessons and put the rules into practice.

Amber
Window to the Past

David A. Grimaldi. 1996; 216 pp. \$49.50, Abrams/American Museum of Natural History.

Amber, the semiprecious "stone" of watershed thought, starts as an oozing tree resin that heals wounds and fights wood borers in upstream forests. It travels with ancient logs to the deltas and coast, where the wood lignifies black and the resin "fossilizes." Peering into amber one can find samples of long-gone forest communities. Bacteria to geckos have been mummified in amber's tawny mass. Grimaldi's book is the best collection and presentation of amber from microphotographs to mines to carved figurines. As a perk, it has well-written stories of crusaders at war for Balkan amber, Nazis hiding the famous Amber Room panels from Russia, great forgeries, and earth history. It's an "organic" gem. —PW



a hot needle. When the hot needle is touched to amber or copal, the smell is resinous; imitations smell acrid, like burning plastic or burned fruit.

“A fascinating insight is revealed by discovery of amber pieces with a menagerie preserved inside, forming a true snapshot of a tiny part of the community. . . . One in the Stuttgart museum, has in it some two hundred individual arthropods belonging to twenty-two families.

“The Teutonic Knights returned to Europe from the Crusades in 1211,

and, in 1225, Conrad, Duke of Masovia, made an appeal to the knights for help in subduing the Balts along the Baltic coast. By 1283, the knights were absolute rulers of Prussia and Baltic amber had become a lucrative commodity for trade . . . Shipments of amber were sent to the newly formed guild of amber, Paternostermachers (Makers of Lord's Prayer beads), in Bruges . . . By 1312, the knights had assumed a monopoly on the trade.



Mask of Dionysus, Roman, 1st Century A.D. Height 4.5.”

Gecko lizard trapped in resin.



“Various substances have been used to imitate amber . . . now most commonly, polyester resin. . . . The imitations are usually discerned by their unnatural color or composition, or with

The Nature of Horses
Exploring Equine Evolution, Intelligence, and Behavior

Stephen Budiansky. 1997; 290 pp. \$30, The Free Press (a division of Simon & Schuster).

Intriguing and well researched, this one is an equine gem that contains rare evaluations of development and mannerisms. Combine any number of horse books and you would be unlikely to discover the same encompassing wealth of information. —Melissa Fischbach

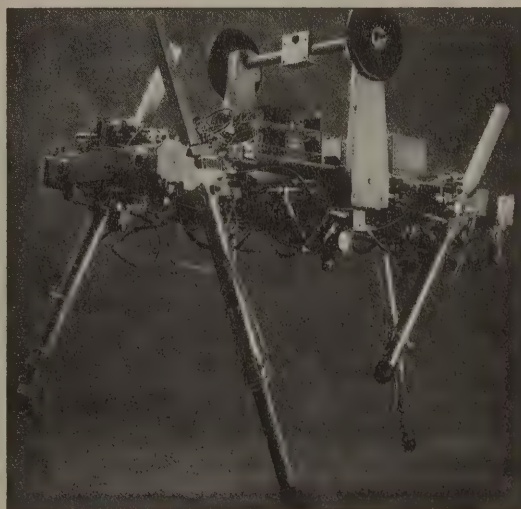


“One general trend that appears early on in the evolution of horses, and which sets them apart from their fellow herbivores in the Eocene epoch (55 million years ago), was a significantly larger brain. In particular horses developed an expanded neocortex—the part of the brain unique to mammals that is responsible for learning and for correlating multiple sensory inputs. . . . *Hyracotherium's* development of a larger brain may initially have been related

to a need for increased tactile sensitivity of the lips, important to a grazer or browser's ability to efficiently select desirable forage.

“It is a tribute to its fecundity and its adaptability that the horse has survived both near-extinction at the whims of

nature and often harsh exploitation at the hand of man. For 6,000 years the horse was a creature of man's enthusiasm for warfare, his ever growing demand for motive and tractive power, and his anthropomorphic and romantic imaginings; for all three the horse has suffered misunderstanding, drudgery, and worse.



Designing a robot that can trot competently, even on level ground, has proved a difficult challenge—testimony to the complexity of the neural processes involved in locomotion.



Right, there was no fall issue. Since you got the summer issue in September, we went straight to the winter issue. We're back on the equinox/solstice Earth-go-round which feels good. With amazement and trepidation, I bring you the business news. Generosity and caring saved us once. Other magazine editors stand in awe, and circulation managers slink away, when I casually tell them that our readers sent \$139,000 in order to keep Whole Earth alive. It was enough heartfulness, they ask, to lure a desert rat editor from his cactus home? enough to crank up this quarter-century jalopy? Generosity and caring just saved us again.

We just don't fit the commercial paradigm. Our editorial costs are big ticket, though hardly posh. We scope ten items for every one we choose, locate and network resources, and figure out the good stuff to think or do, and then check it once more. More subtle than search engines, we duck and run from info-glut, try to jump-start forums, conversations, and pow-wows where ideas spar and flex their muscles and grow strong.

On the other hand, much of the best writing of Whole Earth is donated (e.g., Donella Meadows' special on leveraging the system) and our artwork contributors shrug down their usual rates. We average seventy-five percent renewal rates that are the envy of the business (please, keep it up). We can't rely on mega-chain distribution. Until this issue, we ran minimal advertising. After two issues, I've come to see that our paradigm is: this maga-

zine is no better than its friends. (Can you find us the little health store, the corporate office, the bookstore or college shelf? Can you give gift subscriptions?)

Magazine mortality mimics corn field fumigation. Most creatures die and only the lucky, the crafty and the genetic bohemians survive 'til the next overflight. Nine hundred magazines start each year and more than 800 expire. Might, a kick-ass magazine of wry commentary and in-your-face prose, just lost their surf boards. "Printed in the USA," Might concluded, "where dreams come true for only the crooked, and success occurs where virtue fails." Adios also to Common Cause and Cross Roads. The Nation found new life when Robert Redford, Paul Newman, Victor Navasky, and two others chipped in a million dollars each and set up an endowment. Ms. expired, then revived without ads in the hands of gentle financial angels.

Friends have kept us alive despite ourselves. The 1997 budget proposal drastically underestimated start-up costs, the dollar impact of delays, and the dampening effect of debt on fund-raising. The cash-squeeze noose was set in place. The Point Foundation board meandered. Directionless, it found a direction: it gave me permission to seek a new foundation home for the magazine. (Any reasonable offers; we do come with outstanding debt).

Hey, so why are we here? In late September, Big Hearts popped up. A mock-up of this issue circulated. At all different scales, gifts and grants arrived. Friends' basic goodness and desire to nurture deep value changes

plucked at my cynical sinews. The Sacharuna Foundation, Philanthropic Collaborative, the Preservation Fund, and an anonymous donation made it possible for Whole Earth to bridge the cash squeeze. Donations from the Buddhist community made possible the interview between HH Dalai Lama and David Brower.

I much prefer stories to lists: It's fall and the bucks have antlers, Indonesia burns, and El Niño looms off the coast. When No. 90 reached San Rafael, a tall man dropped by the office. His shiny black dog, perhaps a long-haired Scotty, sported a bumper-sticker orange cape that said: "Hearing Dog." The dog lazed at my feet and Jonathan told me he had lost ninety percent of his hearing. His dog runs to the phone or door to help him know when something's happening. We chatted about dogs for the disabled, blind, search-and-rescue, and dope detection. He handed me Whole Earth's reader survey, met the folks, and said good-bye. A great local drop-in. Inside the folded survey was a check for \$1,000. In that moment of financial darkness, the staff looked stunned.

Jonathan is part of an extraordinary outpouring of help to arrive by phone or the door. Point earns seventy-five percent of its budget, but needs to raise twenty-five percent of its 1998 budget (\$200,000) from gifts and grants. (In 1997, we raised \$225,000.) We need to build up subscribers and find newsstands. Persistence and hope can spawn new paradigms.

We welcome an old friend—Hunter Lovins of Rocky Mountain Institute—to the Point Foundation Board. Even before joining, she roped in a donation from Apple of two monitors, two Power PCs, and a color printer. J. Baldwin worked at Rocky Mountain all summer and wants you to know that Bucky Works (John Wiley) is available in paperback.

Our long-term editorial vision dawns. The editorial advisory board includes Gary Snyder, Godfrey Reggio (creator of *Koyaanisqatsi*), Vijaya Nagarajan, Sharyle Patton, Jerry Mander, Wolfgang Sachs, and more (just waiting for confirmations). Whole Earth's vividness should become more so.

Apologies, Updates, and Corrections

From *Whole Earth* No. 90 (Summer 1997)

The full ordering information for *The Fine Art of California Indian Basketry* (p. 11) is Heyday Books, PO Box 9145, Berkeley, CA 94709, 510/549-3564. Include sales tax and \$3 s/h.

We really blew it with Rain City Publishing (pp. 18-19). Julie Parker drew the Scottish Blackface sheep, angora goat, cashmere goat, bactrian camel, llama, vicuña, angora rabbit, and silk-worm. She should have been credited for each illustration! The correct phone number for her trio of fiber books is 206/527-8778. The "Merino sheep" is actually a Blackface, and the "mohair goat" is more correctly called an angora.

Felt (p. 18) is by Gunilla Paetan Sjøberg, Interweave Press, 970/669-7672.

Credits were also egregiously omitted for the photographs from Women in the Material World (Sierra Club Books), by Faith D'Aluisio and Peter Menzel: Guatemala (p. 24), Annie Griffiths Belt/Material World; Brazil (p. 25), Stephanie Maze/Material World; and China (p. 26), Lynn Johnson/Material World.

To contact *Slow* (p. 27), email slowinfo@slowfood.com, phone ++39/172/412519, fax ++39/172/411218. The postal address is correct.

To order *School of Assassins* (p. 47) by mail: Maryknoll Productions, PO Box 308, Maryknoll, NY 10545-0308.

The correct URL for

Marine Watch (p. 60) is www.marinewatch.com.

We apologize for misspelling the Malpai Borderlands Group's name (p. 72) and stating that they were interested in re-introducing prairie dogs. Only one member of the Malpai group (the Animas Foundation on the Gray Ranch) has explored this possibility. On the same page we neglected to credit photographer Jay Dusard for his Gray Ranch photo.

The new address and phone/fax number for Friends of Tuva (p. 94) are PO Box 182, Belvedere, CA 94920 and 415/789-1177.

The correct access information for *Pharmako/Poeia* (p. 98) is Mercury House, 785 Market Street, Suite 500, San Francisco, CA 94103, 415/974-0729, fax 415/974-0832.

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Many thanks to these people, who have provided editorial assistance, illustration procurement, business help, pointers for fundraising, etc., etc.

Amy Alkon
Lorraine Alkon
Albert Barsocchini
Aleta Brown
Tyrone Cashman
David Chadwick
Linda Conner
Magda Cregg
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L. Kenji Strong, for use of her Buddha sculptures (see pp. 38-42). HC 75, Box 68, Lamy, NM 87540; 505/466-6037.



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It's a phoenix rising out of the ashes. Thank you thank you thank you for persisting, sustaining, reviving, creating. The world needs this journal more than ever. I need it, need for such a publication to exist.

How fitting and observant to have Arthur Okamura do the cover, maintaining the integrity and continuity and sensibility by that choice and lots of others.

I was keeping an eye on the mailbox for a couple of months, then figured that you hadn't been able to pull the rabbit out of the hat after all. Did another round of grief work, got cynical, resigned myself to life in a world where the editorial-publishing race is to the Tina Browns. Then the shiny beautiful No. 90 arrived. That was one round of happiness.

Then, reading "Land of Found Friends" was so beautiful and truthful, so arresting that I wept. "Wept salt tears," as Stewart wrote about *Once and Future King*.

It's good. It's always been good, and you're keeping this good in the world. Heroic effort! Crowned with success! Virtue accruing!

Stephanie Mills
Maple City, MI

I am very glad to see Whole Earth back in publication.

In issue No. 90 you write in your editorial about NGOs. I am puzzled by your statement that non-governmental organizations are "new kids on the block" since Whole Earth began.

My father, Lyman C. White, pioneered the field of NGOs in the early 1930s. His two published books on the subject brought forward their importance in international affairs (and national business as well). He felt that these organizations, representing people rather than governments, would become instrumental in establishing world peace. He was active in seeing that NGOs were part of the United Nations at the time it was organized at the end of WW II. They did indeed gain representative status with the Economic and Social Council of the UN, and he became the head of that section of the Secretariat.

Barbara White
Stone Ridge, NY

It is good to see Whole Earth again.

In the article, "How the Chair Conquered the World," some important information is missing. The article covered how sitting in a chair caused the pelvis to rotate. It did not cover what sitting on the floor does to a back. As one with a bad back, sitting on the floor can cause great pain. Sitting on a chair is bad enough.

I have to sit on the edge of a chair with my knees down or on a "back chair" which helps keep pelvic rotation to a minimum.

The illustrations on the bottom of page 56 show other problems. One in the middle shows sitting on one's toes.

This can cause toe damage. In the Orient, people sit with toes extended to avoid this damage. While this position is very uncomfortable on the top bones of feet not used to this pressure, it can be learned.

Peter Grant
Bristol, VT



Our Watershed Home

We live on a south-facing slope of a crumpled sea floor, folded and churned by the continuing collision of the North American and Pacific Plates. Our headquarters sits on a 100-million-year-old piece of the ocean floor that rose above sea level maybe 70 million years ago. We're on a remnant peninsula about 600 feet above sea level that used to stick into an inland sea.

Our attic on the third floor of our building is a crow's nest. We peer at San Rafael Bay and the most important mountain in the Miwok people's sacred geography—Mt. Tamalpais. The warm face of this remnant landlocked peninsula attracted the San Rafael Mission (1817, the next-to-last northern mission of New Spain) as well as the Marin Historical Society, City Hall, and library.

The watershed is just over four miles long and three miles wide with one main stream that now mostly groans between cement siding and huge culverts. The southern divide starts at

San Quentin prison, meanders west, curves through the Tamalpais cemetery, and continues east to an unnamed 1019-foot knoll. Everyone here is so new that the high point has no name. The ridge then descends slowly back to the bay.

The historical rise and fall of the bay dominate the watershed. Tiny islands offshore are actually drowned extensions of the watershed divide. The valley is brimful of mud from hillslope erosion and old intrusions from the bay. The valley has so much mud that the nearshore bay waters are never deeper than thirty feet. This shallow shelving let clever engineers build the major Richmond bridge from San Rafael to the East Bay and the Great Valley. The bridge and Redwood Highway have shaped the life of the mud flats. Commercial development, gated communities, yacht harbors and, along the San Rafael canal, the cheapest places to live for day laborers, mostly Hispanic, settle with the fill.

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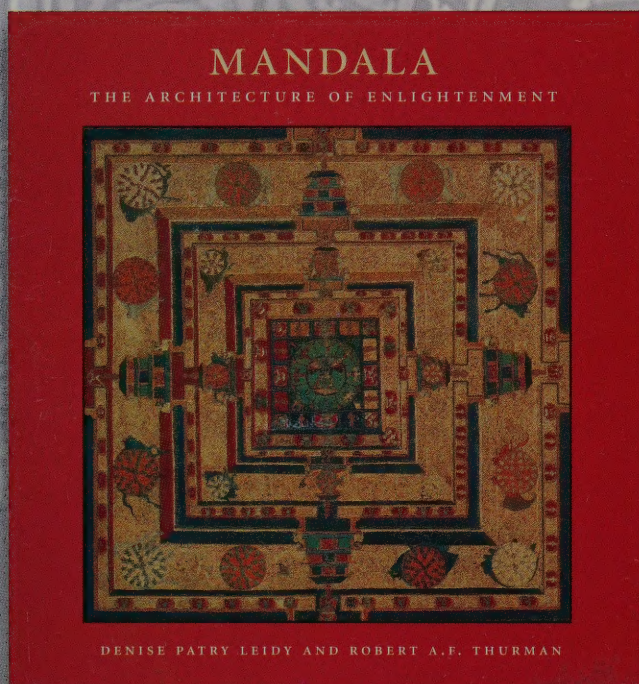
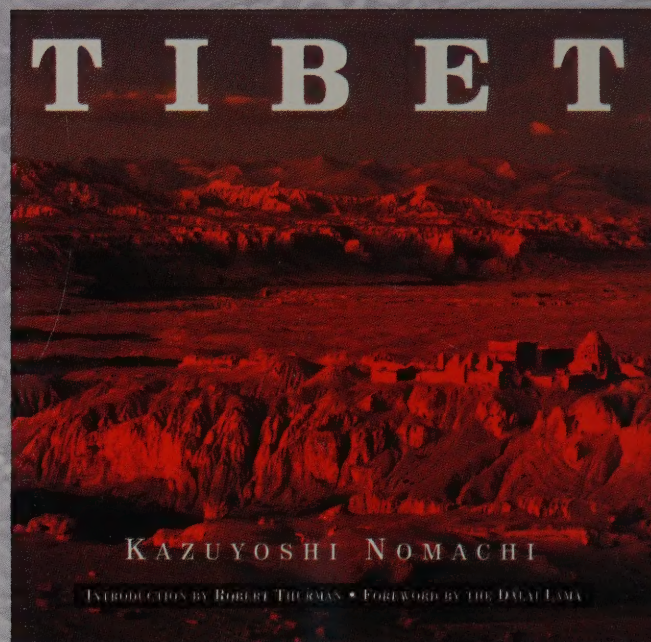
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